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NOMINAL MODIFIERS IN NOUN PHRASE STRUCTURE: EVIDENCE FROM CONTEMPORARY ENGLISH

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1 INTRODUCTION

The English language is, it seems, a boundless source of investigation. As with many other fields of scientific study, new discoveries simply lead to new questions, and hence open up further avenues of research. The phenomenon under investigation in this dissertation has been present in the English language for centuries and has been a major source of word formation, along with borrowing and derivation. However, during the 20th century a sudden and very significant increase in the use of these devices was noted (cf. Biber & Clark 2002). Trends and fashions emerge constantly in contemporary society, and language, as an essential component of social interaction, is also governed by fashion. By implication, the use of nouns in modifying position in Present Day English seems to be the result of a trend, with the use of such forms increasing and spreading through the language. However, this only constitutes a superficial explanation of a linguistic phenomenon which merits a far more detailed and analytical assessment. As we will see in this dissertation, there is only a small available literature here, and most extant research deals only in a relatively superficial way with the topic. Indeed, some studies have looked at N+N structures as part of a wider investigation (cf. Jucker 1992; Biber & Clark 2002), while others have addressed very specific issues (cf. Warren 1978 and Benczes 2006, an assessment from a semantic point of view; Giegerich 2004, from a phonetic perspective; Rosenbach 2007, a comparison of N+N sequences to genitive phrases); other studies take earlier approaches (cf. Levi 1978, from a Generativist perspective), while others have contributed to the literature with small, although valuable, articles (cf. Varantola 1993; Rosenbach 2005). For this reason, a large-scale monographic study on the topic is now in order.

1.1 Aims

This dissertation aims to study those nouns which function as premodifiers in noun phrase structure and which, in combination with the head noun they modify, are referred from hereafter as N+N structures or N+N sequences (e.g. *university library*). Their function as premodifiers is far from being prototypical, since nouns usually function as heads of noun phrases, whereas premodifying position is prototypically filled with adjectives. However, the present research will show that their frequency of use in contemporary English is high.

In order to do so, N+N sequences are studied from three different perspectives: their status, their evolution, and their use. In terms of their status, the structures are considered here as syntactic constructs (cf. Huddleston & Pullum 2002), in contrast to others, who have considered them to be morphological compounds (cf. Levi 1978; Warren 1978; Benczes 2006). As for their evolution, some may become part of the lexicon through a gradual process of lexicalisation, acquiring properties of a morphological, semantic or orthographic nature. Finally, from the point of view of their use, it will be shown that several different variables are in operation.

1.2 Overview of the research

Chapter 2 serves as an introductory review of the theoretical framework adopted, and offers some considerations on the structure of the noun phrase. It focuses on the definition, function and structural patterns of noun phrases as well as their dependents, among which premodifiers are emphasised. A summary of different interpretations of the noun phrase in the literature is offered. These have proposed, variously, that noun phrases may be defined in terms of their component parts (head and dependents), their dependency relations (modifiers depend on the head), and their order relations (modifiers may precede or succeed the head noun).

Chapter 3 discusses nouns as modifiers and provides a thorough analysis of their principal features. It also includes a definition of N+N sequences, as well as a series of explanations which justify their use. A review of previous literature on the matter is also given. This chapter also deals with the ambiguity arising from the use of N+N sequences from three points of view: syntactic, semantic and categorial. The problems in establishing clear-cut boundaries between syntax and morphology when trying to define the status of N+N structures are discussed, and in connection with this, the questions of institutionalisation and lexicalisation will also be considered. Finally, nouns as premodifiers are compared to other dependents such as genitive phrases, adjectives, prepositional phrases and relative clauses.

Chapter 4 is in fact the empirical complement of the previous chapter, since it presents and discusses the findings from a corpus study of English texts on the evolution and use of N+N sequences. Firstly, it offers an explanation of the main hypothesis in terms of four different variables: text category, speech community, time period, and mode. Secondly, a thorough description and explanation of the corpora that have been chosen for the research, as well as of the methodology employed here, is given. Next, there is an overview of the data derived from the corpora. Also included is an explanation of findings from the perspective of the above-mentioned variables, as well as findings obtained after the application of various criteria to test the degree of lexicalisation N+N sequences have.

Finally, Chapter 5 provides a summary of the investigation as well as the main conclusions reached. It also offers a number of suggestions for further research.

2 NOUN PHRASE STRUCTURE

In this chapter a brief account of the structure of the noun phrase (NP) is offered. The main goal of the current dissertation is the analysis of nouns which are embedded as modifiers in those larger units called noun phrases. In order to understand how a noun may act as a modifier in a noun phrase, attention must be paid to the processes which make this possible. Nouns prototypically function as heads of noun phrases, but the object of study here is their role as modifiers. In order to appreciate the differences between these two functions that nouns can perform, an initial analysis of noun phrases is therefore useful.

Each section below is devoted to one specific aspect of the noun phrase. Due to limitations of space and time, I will focus on the definition, function and patterns of noun phrases as well as the modifiers inside them, and will pay special attention to premodification. Accordingly, Section 2.1 deals with the definition and structural patterns of noun phrases, as well as to the role that noun phrases play as means for style. The phenomenon of premodification, where nouns also play an important role, is then discussed in Section 2.2; issues such as the order of premodifiers, their component parts and their possible combinations are also examined. Section 2.3 is then devoted to the role of premodification as opposed to postmodification; there is a reference to previous works (such as Raumolin-Brunberg 1991 or Biber & Clark 2002) that have made a quantitative analysis of the use of premodifiers. Those earlier works will place nominal modifiers *vis-à-vis* the rest of modifying devices. I will also analyse aspects such as the lack of explicitness and context information as well as the pragmatic function of premodification.

2.1 Definition, function and structural patterns of noun phrases

The following subsections offer an account of the different approaches that grammars have made to noun phrases. It should be borne in mind, whilst discussing these different approaches, that the present study of the noun phrase is based on the idea that constituents in an NP are built up of a continuous and recursive sequence of items, and that they may be studied from the point of view of their form and function.

2.1.1 Definition of noun phrases

The concept of phrase has been defined in a variety of ways over time. Jespersen (1976 [1914]: 15) defined it as a combination of words put together in order to form a sense unit. Similarly, Kruisinga (1932 [1909]: 177) distinguishes "syntactic groups" as a combination of words which are part of a sentence. On the other hand, Hockett (1958: 152-154) refers to composite forms which are hierarchically organised. As an illustration, *the old dog* in *the old dog lay in the corner* is a composite form as well as *lay in the corner*. Both of them are part of a construction type, that is, a group of constructions which are similar in some specified way, since both constructions involve the modification of one immediate constituent by the other. Thus, in *the old dog*, *old* is a descriptive adjective which functions as the second immediate constituent, whereas the noun *dog* is the first immediate constituent. Hockett also adds that the composite form yields a constitute, which also belongs to the class of singular nouns. What is thus implied is that the form-class of the composite form is identified with one of its immediate constituents; this is why *the old dog* is a singular noun phrase just as *dog* is. These constructions are called endocentric. However, it seems that, at the time when Hockett was writing, the boundary between syntax and morphology was somewhat unstable, Hockett himself including constructions such as *the old dog* and *blackbird* within the label "endocentric constructions" (1958: 185). Despite this, what constitutes a major advancement

in the study of the noun phrase is that he refers to the concepts of **head** and **attribute** when observing that "the constituent whose privileges of occurrence are matched with those of the constitute is the head or centre; the other constituent is the attribute." (1958: 184). One way or another, this notion of endocentrism has survived to the present day.

More recently, Aarts & Aarts (1988: 10-14) refer again to the idea of the noun phrase as a headed phrase in which the head is the only obligatory constituent. They also use categories and functions to describe sentence units. The general idea is that the component parts of syntactic groups can be divided into lower units until the moment at which indivisible units are reached. Within the context of Generative Grammar, X-bar theory (Jackendoff 1977) views all phrases as the product of syntactic rules which are context-free, and makes use of lexical categories such as N, V, A, P (noun, verb, adjective, and preposition) as the starting point of projection paths. These categories are assigned bars and often prime symbols also (X', X'', etc.), leading to a three-level structure. Thus for nouns, the noun phrase would be equivalent to N'' (N-double-bar), N''' or possibly N''''. It allows any constituent in the X-bar hierarchy to contain another constituent of a lower or even higher level. Example (1) may serve as an illustration of this.

(1) a broadcast of the new show

This is an N'' which contains an N' which contains a P'' (*of the new show*) and an N'' (*the new show*) within it.

Other approaches to the noun phrase have been made within the framework of Functional Grammar, which focuses on the communicative function of language. With Functional Grammar a new pragmatic perspective is added to the study of language. It seeks

to find an explanation for phenomena according to their function in language use. Functional Grammar describes the English clause as a combination of three different structures deriving from distinct functional components, namely:

(i) Ideational. Clause as representation → transitivity.

(ii) Interpersonal. Clause as exchange → mood.

(iii) Textual. Clause as message → theme.

The group structure is also a combination of these three components. *Group* is a term which Halliday (1985: 158-159) uses instead of *phrase*, arguing that "a group is in some respects equivalent to a word complex – that is, a combination of words built up on the basis of a particular logical relation." The differences between *group* and *phrase* are mainly that "whereas a group is an expansion of a word, a phrase is a contraction of a clause."(1985: 159). Halliday recognizes the existence and relevance of noun phrases, which he calls *nominal groups*. He emphasizes the value of groups (or *phrases* in the terminology employed here) since they provide very important aspects of meaning. Were it not for phrases, the lack of an intermediate level between clause or sentence and word would entail an enormous loss of insight. That is, describing a sentence as a construction of words is rather like describing a house as a construction of bricks, without recognizing the walls and the rooms as intermediate structural units (ibid.).

Cognitive Grammar offers a different approach to the study of noun phrases. In principle, it starts from the same premise as do the generativists when it conceives of language as knowledge in the mind. However, it differs in its conception of grammatical organisation and of the specific proposals concerning semantic structure (Langacker, 1990:

1). In fact, Langacker regards grammar as non-generative and non-constructive, not an algorithmic device giving a well-defined class of expressions as output, and contends that there is no such a thing as a form without meaning. Since meaning drives grammatical encoding, judgements about the grammaticality of some structures are not categorical but simply a matter of gradience. Grammatical structures do not constitute an autonomous formal system but, rather, are symbolic. Thus, lexicon, morphology and syntax belong to a continuum of symbolic units.

This notion of grammar gives a new perspective to the definition and use of noun phrases, both in terms of the categories of which they are comprised as well as the functions of each of their component parts. Thus, Langacker points out that categories such as nouns may be defined in notional, rather than grammatical, terms (ibid.: 59). As far as functions are concerned, the consideration of the determiner as the head of the noun phrase will be explained later in this chapter.

Traditionally, there is a distinction between the lexical category *noun* and the syntactic category *noun phrase*. As Taylor (2002: 343) points out, noun phrases, or nominals, may exhibit considerable internal complexity. In terms of their conceptual organisation noun phrases have four components:

(i) Specification. A given noun is a type that may be specified by using an adjective modifying it (e.g. *red apple* still designates an apple but it is more specific).

(ii) Instantiation. The relation between the type and its instances (i.e., those which are candidates to be selected by the noun phrase). While the noun designates a type, a noun phrase designates an instance of the type.

(iii) Quantification. Refers to the quantity of the designated instances.

(iv) Grounding. The speaker locates the designated instance from the perspective of the speech event (e.g. whether it is definite or indefinite).

These four aspects stand in relation to one another. Thus, specification is internal to instantiation, and quantification is internal to grounding. Dependents define specification, determiners specify grounding, while quantifiers specify quantification. Figure I serves as an illustration.

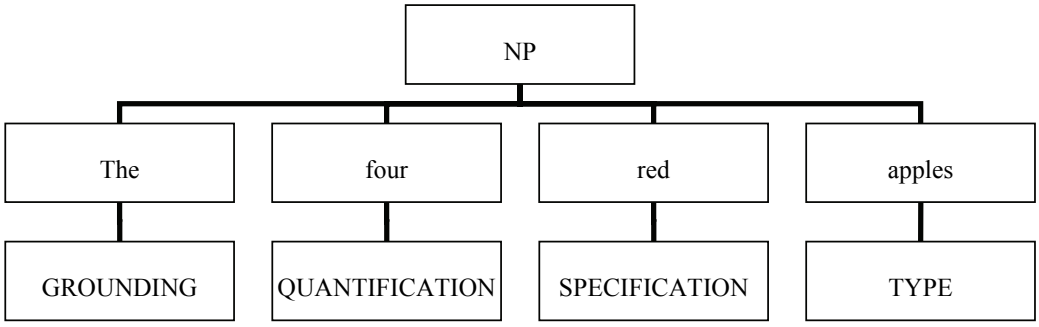


Figure I Noun phrase components regarding their conceptual organization

Grounding enables the speech-act participants to establish mental contact with the designated entity. A speaker, by using a grounded nominal like *the apples*, is referring to the designated instance. The referent of a grounded nominal is not an object from the external world but an entity in a mental space. Grounding is intimately related to headedness, for which, as Taylor points out, phonological autonomy and semantic contentfulness are not actually relevant. Since a grounded nominal designates an instance (*those* apples and not any others) and not the type (*apples*), the profile of this composition is inherited from the determiner and not from the noun. This is the reason why the determiner is considered to be

the **head** of the noun phrase. The noun is therefore the complement of the determiner, since "it fills in the conceptual material that is only schematically present in the semantic structure of the determiner." (Taylor, 2002: 350).

Despite the obvious differences, the above approaches all share the belief that noun phrases are part of a syntactic group and are themselves made of component parts, although, admittedly, componentiality is made less use of in favour of a symbolic approach in Cognitive Grammar. Apart from constituency, other aspects, such as the function and the category of their constituents, must also be considered.

A detailed and model-free analysis of NPs is offered by Raumolin-Brunberg (1991: 64) when she refers to the concepts of constituency, dependency and linear order as the relations affecting the NP structure. As far as constituency is concerned, part-whole relations are established and the NP is therefore understood as a hierarchical structure. When it comes to dependency, part-part relations are established, since the existence of one item depends on the existence of another. Consequently, dependency provides information about how the elements are subordinated to each other. Raumolin-Brunberg (1991) also makes reference to the prevailing indecision among scholars as to an established terminology to describe the relation of dependency; terms such as *subordination* and *embedding* exist, as well as *dependency* itself, although these are far from identical in denotation. The final relation affecting NPs referred to by Raumolin-Brunberg (1991) is that of linear order, which is the position that the constituents can take in relation to neighbouring items. With this relation we may establish, for example, what the order of premodifiers is in connection with the head noun they modify.

In summary, the noun phrase may be defined in terms of its constituent parts (head and dependents) and their dependency (modifiers depend on the head) and order relations (modifiers may precede or succeed the head).

2.1.2 Noun phrases and nominals

The syntactic function of noun phrases is another defining property which helps to clarify their status and role. Thus, Payne & Huddleston (2002: 326) state: "NPs are prototypically capable, when placed in an appropriate case-form, of functioning as a complement in clause structure, i.e., as subject (***The doctor*** *arrived*), object (*We need* ***a doctor***), or predicative complement (*Kim is* ***a doctor***)." From this definition, it can be inferred that the syntactic function of noun phrases is restricted to the above mentioned functions. However, noun phrases can also function as complements in prepositional phrases (*The bread is in* ***the kitchen***). In connection to this, Payne & Huddleston (2002: 329) distinguish another category, one which is intermediate between the noun phrase and the noun. This is the *nominal*, which fills another syntactic function, that of nominal modifiers. Example (2) may serve to explain this term.

(2) The red apple

In (2), the definite article is the determiner of *red apple*. This expression is not a single word, hence it is not a noun, but it is not an NP either, since it cannot function as a subject, object, PP complement, etc. (e.g. ***Red apple*** *is in the basket*, or *Give me* ***red apple***). Hence, the expression is a nominal, which is head of the noun phrase, but can also function as pre-head dependent, as in (3).

(3) Those market price fluctuations

Market price is thus a nominal, it is neither a noun nor can it be an NP (e.g. ***Market price** is rising*). It modifies the head of the NP *fluctuations* as a nominal modifier. The nominal also serves to discriminate internal from external dependents in NP structure, which is a distinction to be discussed in the next subsection. Biber *et al.* (1999: 97) also include the term *nominal* in their grammar, but the specific function of nominal in Payne & Huddleston (2002) as an intermediate category becomes more explicit when they assert: "Note that the term *noun phrase*, or *NP*, is frequently used more widely for any unit which appears in the positions characteristic of noun-headed structures (including clauses). If needed, noun phrases in this broad sense may be singled out as nominals."

2.1.3 Structural patterns

As has previously been seen, an NP is formed by a noun to which some dependents may be added. Those component parts offer a wide range of possible combinations in noun phrases, which gives rise to different structural patterns. A preliminary distinction can be made between simple vs. complex noun phrases (e.g. *the dog* vs. *the lovely hairy black dog with a red collar standing at the door of the house*).

The head of the NP is defined by De Mönnink (2000: 20) as the "dominant member of the NP." This is rejected by generativists and also by Cognitive Grammar, where it is alleged that the determiner is the most prominent member which establishes the relationship between the type and its instance (cf. Section 2.1.1 on the discussion of grounding). However, from a less symbolic point of view, and if we restrict ourselves to the parameters of syntactic constituency, the rest of the NP components are placed around the head to specify the meaning and function of that head. The head may be filled by a noun (e.g. *the **dog***) or by a

nominal (e.g. *the* ***black dog***). As a consequence, there are two kinds of head: an ultimate head (*dog*) and an immediate head (*black dog*). Other fillers of NP head are pronouns, numerals, or adjectives such as *poor* in *the poor*.

The construction of an NP is always recursive since a number of dependents can be added to the head element. Some dependents may precede the head and others may follow it. From a grammatical point of view, the determiner is the most important dependent in the NP, owing to the fact that this dependent is obligatory in many instances (e.g. ***the*** *dog is barking outside in the garden* vs. **dog is barking outside in the garden*). This position is usually filled by a determiner proper (e.g. ***this*** *dog*) but might also be filled by a genitive noun phrase (e.g. ***the dog's*** *bed*). Furthermore, a more detailed analysis of this position reveals that predeterminers can also appear here (e.g. ***both*** *these books*), as well as central determiners (e.g. *both* ***these*** *books*) and postdeterminers (e.g. *the* ***many*** *books you have*). On the same lines, Payne & Huddleston (2002) refer to the position of the predeterminer by making another distinction between internal and external dependents; the definition of each, they argue, depends on the place they take in relation to the nominal[1]. Thus, among the external dependents there are predeterminers (e.g. ***both*** *my skirts*, ***such*** *a wonderful day*) and peripheral modifiers (e.g. *the cat* ***alone***).

As far as internal dependents are concerned, they are placed within the nominal constituent and therefore they follow the determiner and other external dependents (postdeterminers for Quirk *et al.* [1985: 1239]). Payne & Huddleston (2002: 439) make a distinction between internal dependents that depend on their position in the NP (as preceding or following the head noun) and those that depend on their function (as complements or modifiers). When defining those dependents, the differences among them and their features

[1] Cf. Section 2.1.2 on the definition of nominal by Payne & Huddleston 2002.

are not clear enough: "The pre-head dependents are modifiers, while complements are seen in *the finance minister*, *our legal advisor*, and the like. Of the post-head dependents, *of Paris* is a complement and the rest modifiers."[2] (2002: 331). However, no definition exists which may help to discern the differences among dependents. Payne & Huddleston shed some further light on the issue when they put forward criteria for distinguishing complements from modifiers, pointing out similarities between the two in terms of sentence structure (2002: 439):

(i) Complements must be licensed by the head noun (e.g. *an injury* ***of the wrist*** vs. *******an injury* ***to the wrist***). The choices between the types of items that appear as complements depend on the head noun.

(ii) Scope of anaphora. The pronominal *one* precedes any internal dependents. An input which is a complement (e.g. *You must take the bus* ***to the station*** *and not the one* ***to the hospital*****,** where *to the station* and *to the hospital* are complements vs. *This bus is not the same as the one* ***to the hospital***, where *to the hospital* is a modifier).

(iii) Correlation with syntactic category. Adjectives are typically modifiers in noun phrase structure; however, there are exceptions, such as in the case of *rural policeman* (e.g. *******The policeman is rural*).

(iv) Positional mobility. The position of complements tends to be more restrictive than that of modifiers; this is especially the case of pre-head complements, which must be positioned adjacent to the head noun (e.g. *a polite rural policeman*).

[2] The complement *of Paris* that Payne & Huddleston (2002: 331) allude to belongs to the NP *The photos* ***of Paris*** *which his father had taken*. By "the rest" they refer to the modifiers in bold type in the following NPs: *A house* ***as big as I have ever seen***, *The nightlife* ***in Paris***, *The proposal* ***which he made***.

(v) Complements express semantic arguments of the head noun. This is especially so when the noun is a semantic predicate denoting some property, relation, process or action and the complement represents an involved entity like the bearer of a property or a term in the relation (e.g. *the softness* ***of your skin***).

(vi) Semantic roles of complements depend on the head noun. This is especially the case of complements headed by the preposition *of*, for example in *the decease* ***of his father***, where *his father* is agent, or in *the election* ***of his father***, where *his father* is patient.

(vii) Semantic selection restrictions in noun phrases involve complements (e.g. *the reading* ***of the poem*** vs. **the reading* ***of the desk***).

Payne & Huddleston's (2002) overview on NP structure is, despite some gaps, relatively comprehensive. Quirk *et al.* (1985), on the other hand, restrict those dependents to modifiers, and make a distinction regarding their position within the noun phrase (whether they precede or follow the head noun). Nevertheless, they differentiate among the following various kinds of modification: restrictive (e.g. *my* ***younger*** *sister*), non-restrictive (e.g. *my* ***lovely*** *dog*). Restrictive modifiers are those dependents that can create a subclass of the class denoted by the head of the NP, whereas non-restrictive or descriptive modifiers are those which describe the referent of the NP in terms of a particular quality it possesses (cf. also De Mönnink 2000). Also, a further distinction between temporary and permanent modifiers can be made. Premodifiers tend to be permanent (*the* ***lovely*** *girl*) whereas postmodifers may be temporary. Thus, temporary modifiers cannot usually be placed in premodifying position (e.g. **the* ***ready*** *man*). The categories which are employed as modifiers are mainly adjectives, which are placed in premodifying position, but nominals are also common categories filling

this position. Participles ending in *–ing* and *–ed* may also function as premodifiers. On the other hand, the postmodifier position may be held by relative clauses, *-ing* and *–ed* clauses, *to infinitive* clauses, prepositional phrases and noun phrases in apposition.

As pointed out above, the head noun in an NP is traditionally the element around which all the dependents are placed, and one can usually recognise a prototypical NP structure in which the order of each of its elements can be observed. De Mönnink (2000: 19) divides a prototypical NP into the following constituent elements: limiter, determiner, premodifier, head and postmodifier. The limiter is not the same as Payne & Huddleston's (2002) *external dependent*, neither is it the *predeterminer* in Quirk *et al.*'s (1985) account. The differences with this analysis have to do with the fact that De Mönnink includes a new analysis of the determiner position which is fulfilled by a determiner phrase. Thus, the predeterminer, central determiner and postdeterminer that Quirk *et al.* (1985) resorted to are here part of the determiner phrase and thus the **limiter** is another kind of dependent. It is similar to the determiner phrase premodifier because it precedes other determiners and it is realized by an adverb phrase (e.g. ***only*** *my books*). However, a limiter cannot co-occur with a determiner phrase premodifier. The differences lie in the fact that the determiner phrase premodifier can obviously occur only if the determiner phrase slot is also realized. Furthermore, the stress will fall on the following item (e.g. ***around*** *twó days*). On the other hand, the limiter is not dependent on the realization of the determiner phrase slot and receives the stress, since it restricts the reference of the NP (e.g. ***júst*** *your friend*).

The second element (DET) is the determinative, whose occurrence depends largely on the head noun of the NP. The premodifier (PREM) is the following dependent. As previously noted, this function is mainly filled by adjectives, adjective phrases, and nouns, but also by *–ed* and *–ing* participles, genitives, adverbs and other phrases. Premodifiers can co-occur, and

the order in which they appear as a sequence is not entirely free. As De Mönnink (2000: 21) observes, "(…) the ordering is dependent on the syntactic and semantic class membership of the items concerned (…) the general rule is to place the more objective and undisputable qualifications closer to the noun, and the more subjective, opinion like ones farther away." This implies that descriptive adjectives precede classifying ones, whereas nouns will appear after the other premodifiers. Quirk *et al.* (1985) further subclassify premodifiers from the furthest to the closest to the head noun as follows:

(1) General (*small*, *big*)
(2) Age (*old*, *young*)
(3) Colour (*black*, *red*)
(4) Participle (*disturbing*, *closed*)
(5) Provenance (*Spanish*, *English*)
(6) Noun (*air*, *Paris*)
(7) Denominal (*personal*, *human*)

In spite of this possible ordering of premodifiers in noun phrase structure, it should be pointed out that premodifiers may exhibit a certain weakness in their constraints (cf. Section 2.2.2 on the order of premodifiers).

The head (HEAD) is the following element, and indeed the most important one, since all the other items in the NP depend on it. Postmodifiers (POM) follow the head and can prototypically be filled by prepositional phrases and clauses, but also by adjective phrases and noun phrases.

This is the prototypical structural pattern that noun phrases may exhibit. Yet there are other possible combinations that NPs can display which deviate from this prototypical ordering. Thus, De Mönnink (2000) puts forward a comprehensive classification of noun phrases depending on the kind of mobility that they present. It can be summarized as follows:

Type A. NP with a deferred modifier → the modifier (AP, ADVP, NP) follows the head (e.g. *the breakfast **this morning***).

Type B. Noun phrase with a floating[3] deferred modifier → a clause or a phrase is outside the NP boundaries (e.g. *the news were suddenly spread **that he was coming back soon***).

Type C. Noun phrase with a fronted modifier → a clause precedes the head (e.g. *the **insert coin** icon*).

Type D. Noun phrase with a discontinuous[4] modifier → the constituents of an adjective phrase do not occur adjacent to each other (e.g. *She seems to be **quite** a **different** person **from the one I used to know***).

Type E. Noun phrase with a deferred determiner → part of the determiner follows the NP head (e.g. *The problem does not affect us **all***).

Type F. Noun phrase with floating deferred determiner → the determiner occurs outside the NP boundaries (e.g. *They are **both** playing tennis*).

Type G. Noun phrase with a discontinuous determiner (e.g. ***My** friends **both** went to the party*).

Type H. Noun phrase with a deferred limiter[5]→ the limiter occurs after the NP head (e.g. *He asked for nothing **at all***).

[3] A floating constituent, as defined by De Mönnink (2000: 25), is seen in those instances in which a constituent occurs in a position outside the boundaries of its mother constituent.
[4] If an NP has one or more floating constituents, it is called discontinuous, as stated by De Mönnink (2000: 25).
[5] For a definition of limiter, see page 17.

Type I. Noun phrase with a floating deferred emphasizer → the emphasizer occurs outside NP boundaries (e.g. *She already knew that he was **himself** outside the city*).

2.1.4 Noun phrases as means for style

One of the features which may define noun phrases is that of their static nature, as opposed to the dynamism of verbs. The addition of nominal premodifiers to the head of a noun phrase helps to increase this static character, which itself has some consequences in terms of the goals with which language users may employ them. As an illustration, we may refer to the case of scientific language, which will be also the concern of Chapter 4. According to Varantola (1993), owing to their static character, noun phrases with nominal premodification provide the statements they represent with a universalistic or normative vision, which generates a standardisation of the terminology that scientists employ.

Du Bois (1981) points out that the reasons why nominal premodification in scientific English noun phrases is a recursive phenomenon are not only of a stylistic nature but are also related to the assumptions of the writer as to what concerns shared information. Thus, prenominal position is usually occupied by shared information between the sender and receiver of a message, whereas new information is placed in postnominal position (the end-focus principle). In order to explain this, she resorts to the concept of "communicative dynamism" whereby shared information includes less communicative dynamism than new information (cf. also Halliday 1985)[6]. Therefore, the later elements of a sentence are most communicative, that is, they bear the greatest message load. In spite of the fact that this phenomenon takes place at sentence level, she adds: "(…) the dynamic build up which is conceded to occur in units such as sentences can be seen to occur in their components,

[6] Halliday refers to the concepts of *theme* and *rheme* into which a sentence is organized, and also to notions of given and new information, which often coincide with the theme and rheme, respectively.

specifically NPs."(1981: 55). This awareness of the fact that there is shared knowledge causes a reduction in explicitness, itself characteristic of nominal premodification, since there is no need to repeat what is already known by the interlocutors. Similarly, Quirk *et al.* (1985: 1243) explain that this reduction in explicitness is related to the linguistic and situational context in which a given NP occurs. Thus, there is information of which interlocutors have been aware in previous linguistic interchanges; and there is also the context of the situation in which the sentence is uttered, which helps to fill informative slots in the most efficient way with the least number of linguistic elements.

The function of noun phrases as means for style is also perceived in journalistic language. Complex noun phrases are mainly used in newspaper headlines. Examples (4a) and (4b) may serve as illustrations.

(4a) ***Brown's chief fundraiser*** *embroiled in* ***sleaze row***

(4b) ***Call centre worker*** *wins* ***race case over accent***

Both examples are taken from *The Times Online* newspaper. As can be seen, there is just one verb acting as a link between two different complex noun phrases on which all the information load falls. Such headlines are clear examples of the compressed style of complex noun phrases that can be exploited in journalese[7]. Thus, complex NPs replace potential, more explicit and longer utterances like those with postmodifying relative clauses. Furthermore, the nominal style allows for an impersonal tone that can be used to establish distance between the writer and the news itself, creating the impression that the information presented is objective. This question will be dealt with in detail in Chapter 4.

[7] For a definition of *journalese* see Chapter 4, Section 4.1.1.

2.2 Premodification

Premodifiers are optional elements in the noun phrase, given that their presence or absence does not affect the grammaticality of its structure. However, premodifiers provide the noun phrase with important features, since they identify, classify and define the head noun. Indeed, premodifiers have the potential to be present in all kinds of linguistic interchanges and situations. Furthermore, they contribute to the saving of space.

In addition, and going back to Varantola's (1993: 75) statement introduced at the beginning of Section 2.1.4, premodifiers are seen as permanent, as opposed to postmodifiers, which are more dynamic and variable. Nouns and adjectives, which tend to be stative, are the prototypical categories that fill the premodifier position. Thus, premodifiers tend to describe permanent features of the noun they modify. In the following subsections attention will be paid to the role of the different component parts of premodification, as well as to their order of appearance and the possible combinations that may be found in premodifying position.

2.2.1 Component parts of premodification

As noted, premodifying position is usually and prototypically filled by adjectives (*a* ***sad*** *scene*), but also by participles (*the* ***stolen*** *book/ the* ***rising*** *sun)* and nouns (*a* ***car*** *crash*). In addition, there are other less frequent types of premodifying items, such as genitives (*this* ***airplane's*** *crew*), phrases (*a* ***round-the-corner*** *shop*), and sentences (*the* ***I don't know how many*** *people*). As has been previously noted, nouns and adjectives as premodifiers provide the noun phrase with a static character since they themselves are static. Nevertheless, this tendency towards some sort of permanence is also observed in the case of participles. Thus,

(5) a working man

is not a man who is working at a given time but a man who works habitually.

The premodifier position in noun phrases may be filled by one or more of the above mentioned items, since premodification is a recursive phenomenon. There is much variation across genres in the forms and quantity of premodifiers used; thus, for example, complex premodifying forms tend to be more present in scientific language than in a spontaneous conversation. There is theoretically no limit to the number of items which may appear in premodifying position; however, it is unusual to find more than four, since too much complexity in NP modification will imply a processing overload, leading to a loss of meaning and content.

2.2.2 Order of premodifiers

As we know, the sequence into which these modifying items may appear is not entirely free, since there is an order that depends on a number of factors, such as the intended meaning and the type of premodifier.

In the noun phrase structure, two different ordering constraints can be found. Rigid ordering constraints imply that their violation must give rise to an ungrammatical structure. For example, changing the order of the indefinite article and noun in (6a), below, for example, gives rise to an ungrammatical NP in (6b).

(6a) an apple

(6b) *apple an

Labile ordering constraints, on the other hand, imply that a change of order will not give rise to an ungrammatical structure; such constraints simply give the preferred order in the default case. Thus, departures from this order will often be of questionable acceptability but

may be justified by considerations of scope and information packaging (Payne & Huddleston, 2002: 452) Thus, in examples (7a) and (7b),

(7a) I want to wear a long red dress

(7b) I want to wear a red long dress

(7b) is an illustration of labile order. The prototypical order of modifiers in (7a) has been changed, but no ungrammatical expression has been created as a result. This second example serves to emphasise the kind of long dress the speaker wants to wear (which is *red* and not of any other colour). Thus, the sentence could be expanded as in (7c).

(7c) I want to wear a **red** long dress and none of the other long dresses I have got in my wardrobe

As already noted, there is a general rule whereby the more objective and unquestionable modifiers are placed closer to the head of the NP, whereas the more subjective ones are placed further away. This implies that nouns are closer to the head noun, while adjectives (especially descriptive ones) will precede those modifying nouns.

(8) A touching private poetry reading

In this NP, the descriptive adjective *touching* precedes the classifying adjective *private*, which itself precedes the modifying noun *poetry*; both are premodifiers of the head noun *reading*. Thus, positions closer to the head noun are filled by descriptive modifiers, which are "more

integral to the identification, classification, or description of the head noun referent." (Biber *et al.*, 1999: 599). Along the same lines, Quirk *et al.* (1985: 1339) distinguish four different premodification zones: precentral, central, postcentral, and prehead position. Non-gradable adjectives are situated in precentral position, gradable adjectives are placed in central position, whereas participles and colour adjectives are left in postcentral position. In prehead position are the least adjectival and most nominal modifiers (adjectives denoting nationality, style, provenance; denominal adjectives and nouns). Figure II illustrates this classification.

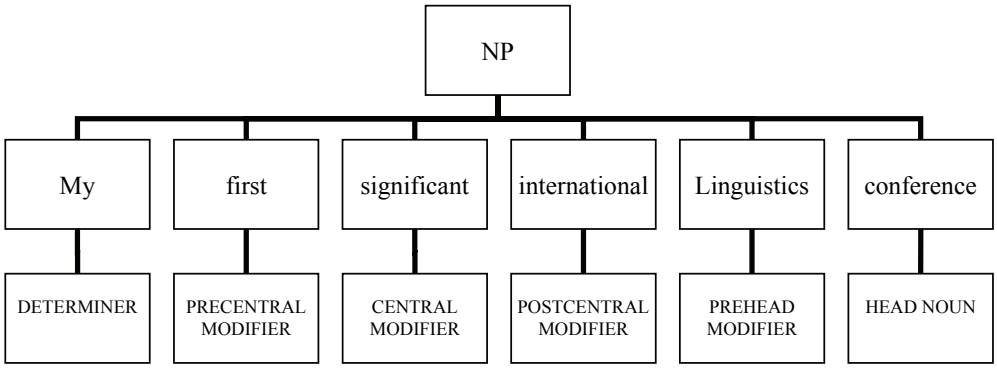


Figure II Premodification zones

When items of the same group co-occur there is a tendency for those modifiers which denote place and time to take precedence (e.g. *National biological laboratory*). Likewise, when there are two premodifying nouns (e.g. *A plastic milk bottle*), Quirk *et al.* (1985: 1342) point out that the second premodifier corresponds to the object of the verb in a potential underlying sentence (e.g. *The bottle contains milk*), whilst the first premodifying noun is related to material, means, instrument, space or any comparable adverbial relation (material in the example above). However, this is not always the case, as many examples in the present corpora have shown. Thus, in the case of example (9),

(9) cable television regulation bill (FROWN A01 L6)[8]

there is no possibility of saying that the **bill contains a regulation*; rather, the *bill regulates the cable television*, which implies that the second premodifier becomes the verb of the potential sentence and the first premodifier becomes the direct object.

2.2.3 Possible combinations

Multiple premodification also implies that premodifying items may be coordinated. There are examples of coordinated premodifiers.

(10a) She was an **absent and forgetful** person

(10b) He gave me some **honey and jam** jars

In both examples, there are two coordinated premodifiers which belong to the same category: two adjectives in the case of (10a) and two nouns in the case of (10b). Quirk *et al.* (1985: 1340) note that there is no possibility for a coordination of premodifiers from different categories, such as a noun and an adjective.

(11) **the local and waterboard authorities

However, many examples **can** be found of coordinated premodifiers which belong to different categories.

[8] For an explanation of the reference of this extract see Chapter 4, Section 4.2.1.

(12a) Hydraulic and fuel lines (FLOB J77 L206-207)

(12b) Parochial or district situation (FLOB G53 L107-108)

In these, the first constituent of the coordination is an adjective and the second is a noun, both of which premodify the noun heads *lines* and *situation*. We may thus wonder to what extent example (11) is ungrammatical, since real examples of this kind are found. Likewise, Rosenbach (2005: 545) makes reference to these sorts of coordinations as examples of nouns which have adjectival properties, such as ***personal*** *and* ***family*** *tragedy*. She stresses the fact that if both noun and adjective are coordinated it is because they belong to the same category. However, this does not seem a very compelling argument, and indeed she ultimately recognises that great difficulty exists in explaining this phenomenon whereby both items seem to share the same function but not the same category. Clearly this matter deserves more reflection, since the answers provided so far are not satisfactory[9]. It may be analysed from other points of view, such as the gradience between adjectives and nouns and the progressive acquisition of adjectival characteristics by nouns in their function as modifiers. This question will be dealt with in detail in Chapter 3, Section 3.3.3.

Likewise, there are cases in which the coordination is placed in head position.

(13) Body fluids and chemicals (LOB J16 L66-67)

[9] The fact that an adjective and a noun are considered to be of the same category just because they are coordinated does not seem to be very convincing. However, such cases are manifest examples of the fact that nouns in premodifying position are taking some properties which traditionally belong to the adjective. This could be an explanation for the grammaticality of the coordination between nouns and adjectives in premodifying position.

in which a single noun premodifies the coordinated head nouns *fluids and chemicals*. This kind of construction may yield some sort of ambiguity, since one may wonder whether the single modifier is referring to one or both of the coordinated head nouns.

Complexity in the case of premodification can also be appreciated in (14) and (15).

(14) some red brick farm houses

In (14) a head noun is modified by two different nouns *brick* and *farm*. However, the complexity of these premodifiers is evident, since there is an adjective (*red*) which is itself modifying *brick*. This means that premodifiers can be themselves individually and internally modified by other items. In relation to this, Payne & Huddleston (2002: 446-447) distinguish between stacked modification and submodification. In stacked modification, the items modify the head successively rather than simultaneously.

(15) red linen skirts

That is, in (15) the modifier *linen* modifies the head of the noun phrase *skirts*, and the whole composition is modified by *red*. The evidence for such a structure is justified with coordination and anaphora tests.

(15a) red linen skirts and dresses

(15b) red linen skirts and cotton dresses

(15c) red linen skirts and blue cotton dresses

(15d) I prefer the red linen skirts to these

these skirts

these linen skirts

these red linen skirts

Examples (15a-c) provide different coordinations of the same noun phrase which do not affect the whole composition *red linen skirts*. Example (15d) shows that any of the three heads can be the antecedent of an anaphoric expression (*skirts*, *linen skirts*, or *red linen skirts*).

In the case of submodification, the modifier can itself be internally modified by another modifier, as in example (14), in which *red* is internally modifying *brick*, which is at the same time modifying the head of the noun phrase *houses* (*some* [[*red brick*] [*farm houses*]]).

2.3 The role of premodification as opposed to postmodification

In order to identify, classify or define a noun within a noun phrase, there exists the possibility of making a choice between pre and post modifiers. This choice is conditioned by the distinction between the explicitness and non-explicitness of the information provided by the NP and the communicative goals that the interlocutor intends to achieve. These issues will be considered in the present section, below, which seeks to clarify the value of premodification as opposed to the option of postmodification.

2.3.1 Previous studies

The different results derived from the use of pre or post modifiers were already noticed in different works. Thus, De Haan (1989) has looked at the frequency of use of premodifiers in

relation to the kinds of postmodifiers with which they can co-occur. He used a corpus which allowed him to compare fictional to non-fictional genres. Firstly, he points out that non-fictional texts contain more complex structures, owing to the fact that non-fiction does not contain direct speech. Fiction, on the other hand, shows a preference for simple noun phrases in subject position, whereas it shows more complex noun phrases in non-subject position. Noun phrases with postmodifiers are preferred in sentence final position and are avoided in non-final positions. In subject position, the postmodifying clause is extraposed, leaving the reminder of the subject noun phrase in sentence initial position. The corpus also shows that there are relatively few premodifiers in noun phrases that contain postmodifying clauses.

Raumolin-Brunberg (1991) has studied the spread of noun phrases in early sixteenth century English. Using the writings of Sir Thomas More, she has concluded that adjectives were the most common type of premodifier, whereas prepositional phrases were the most common postmodifiers.

Jucker (1992) takes a sociolinguistic approach to his study of noun phrase structure. He establishes some differences between “high-quality” and popular newspapers, since they are addressed to two different kinds of audience and thus two different socio-economic classes. He concludes by observing that the up-market papers have the highest number of adjectives and the lowest share of nouns and names in pre-head position; down-market papers have a high proportion of nouns and names in pre-head position, but fewer adjectives.

De Mönnink (2000) has looked at the mobility of constituents in the noun phrase, basing her work on a corpus, and has concluded that the immediate constituents of the noun phrase can occur at various positions within or outside its boundaries. Also, the immediate constituents of a modifying noun phrase can be subject to mobility, resulting in a discontinuous modifier of the noun phrase, either within or across noun phrase boundaries.

Biber & Clark (2002) have made use of the ARCHER corpus (cf. Biber *et al.* 1994) to compare the patterns of use of modification in four different registers: drama, fiction, newspaper reportage and medical prose. They studied the frequency of pre and post modifiers in noun phrases for the four registers and their distribution in Present Day English noun phrases. The four registers show almost the same occurrence of NPs. However, the use of modification reveals differences: despite the fact that there has been an increase in the use of both attributive adjectives and nouns as premodifiers over the past three centuries, the greatest change has been the increasing use of nouns premodifying common nouns. Also, for postmodification, prepositional phrases are the most common type, as would be expected; this is specially the case of *of*-phrases.

2.3.2 Lack of explicitness and context information

As has been previously noted, premodifiers are less explicit in meaning relations than postmodifiers, since some of the grammatical items that appear in postmodifying position are lost in premodification. This gives way to more restricted forms based on previous meaning or shared cultural background. In principle, different forms for the same linguistic goal cannot coexist, given that this would imply redundancy (cf. Goldberg's [1995] *Principle of No Synonymy of Form*). This is the reason why premodification and postmodification can be distinguished, broadly speaking, by their semantic implications. Along these lines, Quirk *et al.* (1985: 1242) base the distinction of premodifiers from postmodifiers on the fact that premodifiers are semantically less explicit than postmodifiers, once several grammatical items such as verbs or prepositions are elided in premodification. They stress that premodification can be interpreted in terms of postmodification, which would entail a more explicit expression of the same concept. The noun phrases in (16a) and (16b) may serve as an example.

(16a) the autumn election

(16b) the election which is held in autumn

The premodifier in (16a) includes all the relations which are explicit in the second example, which contains a postmodifying element (*which is held in autumn*). This lack of explicitness would obviously bring about a danger of misunderstanding, since these constructions may be ambiguous, were it not for the fact that contextual information available as a means of avoiding ambiguity. The choices that speakers or writers make when using these kinds of constructions are thus always context-sensitive. The speaker or writer is aware of the information that their interlocutors already know, an awareness which allows them to use such non-explicit constructions with no fear of being misunderstood.

From this, it may be concluded that reduction in explicitness is clearly related to a specific linguistic and situational context. When a context is first established, such as in the case of the initiation of a conversation, there is a need to be as explicit as possible and thus introduce as many modifiers - and textual relations among them - as needed for the creation of a clear context. Once this information has been established, the number of modifiers and their relations is reduced, since there is no need to report details which interlocutors can glean from the context. As a result, the noun phrase is no longer as explicit grammatically.

(17a) the red dress girl

(17b) the girl who is wearing a red dress

Example (17a) is a noun phrase which has a premodifier *red dress*; example (17b), however, is a noun phrase which has a relative clause *who is wearing a red dress* as a postmodifier.

Both (17a) and (17b) express the same idea of a girl wearing a red dress. Speakers can employ either phrase since both are grammatical expressions and have semantic content. Interlocutors will have assimilated the fact that the premodifier of (17a) means exactly what is entailed in (17b). However, the presuppositional status that the premodifier has acquired in (17a) is not showed in the postmodifier in (17b). There is information which is shared by both the sender and receiver of a message in (17a), that is, presupposed information, which is completely new in the case of (17b). Thus, we may imagine a conversation in a crowded cafeteria between two friends who want to take a seat:

A. Do you see that girl sitting in the corner?

B. Which one do you mean?

A. The girl who is wearing a red dress.

B. Oh! yes. Now I see her.

A. I think she has asked for the bill.

A few minutes later, they again refer to the same person:

A. Look, the red dress girl is leaving.

B. Yes, so we can take a seat now.

This conversation has two stages. In stage 1, there is a first reference to the girl, with postmodification, since all information about her is new. The speaker needs to deliver as much information as possible about the referent to ensure that his interlocutor understands. Once this information is delivered, both interlocutors implicitly agree on the main defining

characteristic of this person, and hence they share the same qualifiers in referring to her and in discriminating her from all other potential referents in the context. The qualifier *red dress* seems to be a good option, and finally speaker A decides to conventionalise it by using a premodifier *red dress* in stage 2. From this it may be concluded that premodification performs a different commutative function from postmodification.

2.3.3 The pragmatic function of premodification

The lack of explicitness characteristic of premodification is simply due to the fact that the premodified items themselves are used within a context. If the resulting semantic implications are given with the help of context, premodifiers can be freely used in that given context. However, speakers use them in order to achieve certain goals. One of these, probably the most obvious, is that premodifiers tend to shorten the length of the noun phrases into which they are inserted. This reduction implies that the interlocutor can send the message using minimal coding, saving space and time by creating compact packages of information.

The items placed in premodification position may also be given the status of permanent. In this case, they can create a subclass of the class denoted by the head of the noun phrase; that is, they become classifying modifiers. Consider examples (18a) and (18b).

(18a) a tea cup

(18b) a cup of tea

Here, the contrast expressed by the two kinds of modifiers is clearly seen. In (18a) there is a cup which is defined as a cup used to drink tea. It probably has a shape and other features which help to identify it as a tea cup rather than any other kind of cup. However, in (18b) there is a cup which has no defining characteristics. It is merely a cup that contains tea at this

moment in time, whereas the tea cup is always a tea cup, whatever it contains. In view of this, Jucker (1992: 67) claims that modifiers in prehead position do not describe the head of the noun phrase but actually restrict its possible referents to a small subgroup. Thus, premodifiers provide the noun with a new status which is not given by postmodification. This is the abovementioned *permanence* that they provide to the noun phrase in which they are inserted.

2.4 Summary and concluding remarks

The present chapter has dealt with the definition and function of noun phrases as well as their structural patterns, emphasizing the role of premodifiers as opposed to other kinds of modification in noun phrase structure. The definition of NPs has evolved through time, following the different theories that have appeared over the course of the 20th century, yet these different approaches all have in common the belief that noun phrases are part of a syntactic group and are themselves made up of component parts. However, componentiality is losing ground in favour of the ideas put forward by Cognitive Grammar through the proposal of a symbolic approach. The role of noun phrases as means for style is characterised by their static nature as compared to verbs, and by their compacted appearance, which is also related to contextual information and to the position of the information load; those concepts will be discussed in detail in the following chapters. Reference has also been made above to their structural patterns, which allows for a consideration of the function of premodification and the role nouns play when filling premodifying position, which will also be the main topic of the following chapter. It has also been shown above that nouns as premodifiers not only fill the place which traditionally corresponds to adjectives but can also enter into coordination with them, implying that nouns in such position acquire adjectival characteristics in a process of gradience between categories. This topic will also be the concern of Chapter 3.

To sum up, this chapter has served as an introduction in which the noun as a modifier has been placed in context, and has also served to explore the question of why nouns may actually function as modifiers in noun phrase structure. Various topics related to the function of nouns as modifiers have been introduced and will be expanded upon in the following chapter.

3 NOMINAL MODIFIERS: DEFINITION AND CHARACTERISTICS

As previously noted, noun phrases are built up of a noun acting as head, around which some dependents cluster, amongst these modifiers. The prototypical category fulfilling the position of premodifier is that of adjective. However, nouns as modifiers are also frequently found. In what follows, a comprehensive overview of the features which define nouns as modifiers is presented.

Section 3.1 deals with the definition of nominal modifiers, surveys the features that characterise them, and discusses a number of suggested explanations as to why they are used in English. Section 3.2 reviews the existing literature on nominal modification. Section 3.3 poses the following question: why are nominal premodifiers still understandable if they are simply juxtaposed items? Ambiguity in N+N structures will be studied from three different perspectives: syntactic, semantic and categorial. In Section 3.4, I will focus on the problem of establishing clear-cut boundaries between syntax and morphology while dealing with nouns as modifiers in the noun phrase; processes concerning nominal modifiers, such as institutionalisation and lexicalisation, will be examined in depth here. Section 3.5 compares nouns as premodifiers with other sorts of modification, such as prepositional phrases, relative clauses, genitive phrases and adjectives.

3.1 Nominal modifiers

As we know, the construction of a noun phrase is recursive, that is, we may add new items to its head which help to specify and characterise the extralinguistic referent that the NP is alluding to. The head noun allows the insertion of items to both its left and right sides with pre and post dependents, whether they are internal or external (cf. Quirk *et al.* 1985; Payne & Huddleston, 2002: 439-447). The premodifier position can be filled by different categories,

such as adjectives (e.g. *a **red** car*), participles (e.g. *the **missing** documents*) or nouns (e.g. *a **gold** watch*). Adjectives are the prototypical category fulfilling this position (cf. Jucker 1992; Biber & Clark 2002). As noted in the previous chapter, adjectives are classified depending on the properties they lend the noun which they modify. Their place and order within the noun phrase has been a frequent subject of study (cf. Bache 1978; de Mönnink 2000; Rijkhoff 2002).

In spite of the status of adjectives as the prototypical premodifying category, there is evidence of the increasing use of nouns as premodifiers. Biber *et al.* (1999) observed that, within premodification, nouns are nearly as frequent as attributive adjectives in the *Longman Spoken and Written English (LSWE) Corpus*, a compilation of about 40 million words distributed into four different genres, namely conversation, fiction, news and academic prose; this tendency was especially notable in news and academic prose. Within postmodification, prepositional phrases are the most frequently used dependents, which means that non-clausal modification shows a clear supremacy in Present Day English. Furthermore, the work by Biber & Clark (2002) on the spread of nouns as premodifiers in the Present Day English noun phrase is just another example of this tendency and the interest it has raised among scholars (cf. Chapter 2, Section 2.3.1). Hence, it will be of interest to consider why nominal premodifiers are now on the rise, and which specific functional reasons there might be for this.

3.1.1 Nouns as modifiers

A noun may be defined as the category which characteristically occupies the head position in an NP. It usually inflects for number and it may be accompanied by various dependents, such as determinatives, adjective phrases and relative clauses. Such a definition clearly allows for the possibility that nouns may adopt new functions, since the function of the head is seen as

characteristic but not the only possible one. Nouns as dependents accompany the head of the noun phrase, providing it with those specific qualities that are singular to the given entity. They specify and characterise the head noun, and by providing additional information become essential ingredients in the process of exchanging information within a given communicative process.

Modifiers can also be nominals (understood as a category intermediate between the noun phrase and the noun; see also Chapter 2, Section 2.1.2), owing to the fact that they themselves can contain their own pre-head dependents (19a). However, they cannot usually take dependents to their right side (19b).

(19a) a [white rubber] hanger

(19b) *a [white rubber of high quality] hanger

Nonetheless, there are exceptions, and such is the case of institutional proper names (cf. Payne & Huddleston, 2002: 444).

(20) [Institute of Development] Studies (FLOB B10 L90)

where the premodifying noun *Institute* is itself modified by a postmodifying prepositional phrase *of Development*.

Nouns as dependents can be of two kinds: complements or adjuncts. As complements, they and the head noun are part of an unbreakable combination (e.g. *a linguistics student*). As adjuncts, they freely combine with the head noun (e.g. *an Oxford student*). We might recall from the previous chapter that Payne & Huddleston (2002: 439-443) make a rather sharp

distinction between these two types of noun dependents. However, when dealing with nouns as complements, it is sometimes difficult to discern whether they are part of a syntactic phrase or, rather, whether they combine with another noun to form a morphological compound (cf. Section 3.4; also Bauer 1998; Bisetto & Scalise 1999; Giegerich 2004; Rosenbach 2007).

The former distinction is intimately related to the order of premodifying nouns within noun phrase structure. Thus, the *Principle of Head Proximity* (cf. Rijkhoff, 2002: 264) captures the idea that in a subordinate domain the preferred position of the head constituent is as close as possible to the head of the superordinate domain. This implies that, given an NP as a superordinate domain, the head constituent of a subordinate domain (that is, a modifier) is as close as possible to the head of the NP. In relation to this, there are differences among categories, thus nouns are closer to the head noun than attributive adjectives. The abovementioned distinction between complements and adjuncts may serve to explain why there is such a fixed order of occurrence. Complements are mainly realised by nouns or nominals, as in *a linguistics student*; adjuncts, on the other hand, are mainly realised by attributive adjectives, such as *white* in *a white skirt*. As has already been noted, the relationship between a complement and the head noun is tighter than in the case of adjuncts, a further reason why those complements are closer to the head noun than adjuncts such as adjectives (e.g. *a smart linguistics student*). However, there are exceptions to this, and adjectives which are complements can be found (cf. Payne & Huddleston, 2002: 439), as with *criminal* in *criminal lawyer*, or nouns which are adjuncts, as with *London* in *London Psychiatric Hospital*, in which there is a modifying noun followed by a modifying adjective.

Another classification which resembles Payne & Huddleston's is the distinction between *restrictive* and *non-restrictive* modifiers (cf. Warren, 1993: 59-60). Nouns as modifiers are usually restrictive, since they combine with their heads to form units with a

specific reference (e.g. *flower seller*), whereas adjectives as modifiers tend to be non-restrictive, since they simply provide the head of the noun phrase with additional information about the referent (e.g. *an amusing joke*). As restrictive modifiers, nouns can be *defining* or *classifying*, in this latter case narrowing the denotational class of the head noun to a subset denoted by that head (e.g. *telephone box*, since this is not a kind of box but it refers to another kind of entity) (cf. De Mönnink 2000; Rosenbach 2007). As restrictive modifiers, nouns can also be *identifying*, when they restrict the reference of the head noun (e.g. *winter clothes*, restricting *clothes* to the ones that are usually worn in winter). However, there are occasions when nouns as modifiers are non-restrictive, such as *an Oxford old residence*, in which context makes it evident that *Oxford* neither identifies which particular residence is referred to, nor indicates a particular type of residence (cf. Warren, 1993: 64). As noted in Warren (1993: 60), this distinction would explain the phonological, morphological and syntactic features of nouns as modifiers:

> Nominal modifiers, because of their restrictive function, tend to be part of a stress pattern involving stress reduction, lose their ability to be inflected and, when combined with another modifier, have no predictable scope of modification, so that this has to be indicated by position or coordinating conjunctions.

Warren refers here to the stress pattern characteristic of nouns when combining with other nouns. She also notes that modifying nouns are not inflected for plural even if they refer to plural referents, and goes on to identify the problem of ambiguity when nouns as modifiers co-occur with other nominal modifiers. These issues will be taken up in what follows.

3.1.2 The variability of stress patterns

The syntactic vs. morphological nature of N+N structures is a question which will be dealt with in greater detail in Section 3.4. However, it should be mentioned at this point that this issue has a bearing on the consideration of stress as a defining characteristic of each syntactic or morphological nominal construction. In fact, stress in N+N structures has often been used to argue against or in favour of the distinction between syntactic phrases and morphological units (cf. Giegerich 2004). Marchand (1969), for instance, claims that stress may serve to distinguish syntactic phrases from compounds. He maintains that any *substantive* may be used to *determine* another *substantive*, by which is meant that the first is *transposed* from the position of head (*determinatum*) to that of modifier (*determinant*). This is a syntactic phenomenon which has nothing to do with word-formation and whose basic stress pattern is that of double stress (e.g. *„stone ˊwall*). On the other hand, there are fore-stressed combinations which show a lexical relation between a dependent and its head and which are part of a word-formation process (e.g. *ˊsuitcase*). Thus, for any N+N combination whose first constituent is transposed, the rule is that of syntactic double stress. Marchand (1969: 23) points out that a deviation from that rule must be accounted for by special semantic and/or grammatical reasons. Such a contrast can be seen in examples (21a) and (21b).

(21a) girl friend → syntactic phrase with double stress

(21b) girlfriend → morphological group with fore-stress

Additionally, the frequency of use of the same second element in N+N sequences (as *ware* in *ironware*, *silverware*, etc.) may also be a reason for the existence of fore-stress. Similarly,

Liberman & Prince (1977: 257) point out that "[I]n any pair of sister nodes $[AB]_{x}$, where X is a phrasal category, B is strong", which means that phrasal structures receive right-hand stress.

Olsen (2000a), on the other hand, considers that all N+N sequences are morphological compounds, and thus stress depends on two patterns of interpretation. So, lefthand stress provides an interpretation based on a compound internal inferred relation between the two constituents, whereas righthand stress provides an interpretation based on a compound external modifier-like relation between the two constituents. The stress falls on the first element if the second constituent is deverbal (e.g. *drug dealer*) or if it denotes a semantic relation which may be applied to the first element (e.g. *pizza shop*). Also, lefthand stress occurs in compounds "(…) where a relational notion is not overtly expressed by the head noun, but is inferable on the basis of the meaning of one of the constituents (…) The inferred relation is then used to combine the meanings of the two elements in the compound." (Olsen, 2000a: 60). This implies that there is a semantic relation between the constituents to which we can have access through the application of the cultural background of a given speech community. Hence, *stock market* is a compound because the two constituents are semantically related to each other through the semantic field of economics and business. In other words, Olsen (2000a) relates the variability of stress placement on N+N structures to the semantic relation between their constituents. As a result, all N+N structures receive lefthand stress with the exception of:

(i) Copulative compounds (e.g. *woman ´doctor*).

(ii) When the first constituent is acting as either a locative or temporal modifier (e.g. *hotel ´room*, *August ´contest*).

(iii) When the first constituent denotes the material out of which something is made (e.g. *silk ´dress*).

(iv) When a predicative relation is established (e.g. *key ´word*).

As can be appreciated, these structures are based on the compound external relations of coordination and modification (Olsen, 2000a: 62). However, despite differences of stress and interpretation, Olsen is of the opinion that these differences are not enough to be considered indicative of a change in structure.

Payne & Huddleston (2002: 451) rely on the syntactic tests of coordination and modification to determine whether an N+N structure is a *composite nominal* (their term for syntactic constructions of this kind) or a *compound noun*. However, they also mention other, non-syntactic methods, including stress. Thus, the compound noun has stress on the first element, whereas the composite nominal has stress on the second (e.g. *´blackbird* vs. *black ´bird*). However, they recognise the imperfect nature of such tests, given that there are cases of composite nominals with left-hand stress (e.g. *´biology teacher*) and compounds with right-hand stress (e.g. *ice ´cream* for many speakers). As a consequence, when there is no correlation of the syntactic criteria of coordination and modification and non-syntactic criteria such as stress, they favour the syntactic tests in the analysis of compounds and composite nominals.

Giegerich (2004, 2005b) bases his account of variable stress patterns on what he calls a *split site model*, whereby N+N structures are generated on split sites: both in the syntax and in the lexicon. Thus, stress patterns are predicted for some N+N structures whereas there is a variable stress pattern for a distinct class of other structures. Accordingly, he distinguishes between [complement + head] structures which originate in the lexicon and are left-stressed

(e.g. *´watch maker*), and [attribute + head] structures which originate in the syntax and are right-stressed (e.g. *steel ´bridge*). Those constructions which, in spite of being fore-stressed, are [attribute + head] constructions (e.g. *´orange juice*), then, can finally be explained as the result of a lexicalisation process, where this process may have been accompanied by a gradual loss of syntactic characteristics that identify an N+N structure as a syntactic construct. For a further discussion see Section 3.4.1.

Plag (2006: 145-146), though, has reviewed this assumption, and maintains that the variability of stress assignment in N+N structures depends on the combination of structural, semantic and analogical features. Thus, as far as structure is concerned, we recall that [complement + head] structures are left-stressed (e.g. *´truck driver*), whereas [attribute + head] structures are end-stressed (e.g. *wood ´bridge*). However, Plag raises the following question: why are all forms not phrases, since they all have the same superficial structure? Furthermore, if the stress pattern of N+N constructions were as Giegerich (2004) claimed, then all novel [attribute + head] structures should receive right-hand stress to begin with; this is not always the case, though, and attributive N+N structures with lefthand stress can indeed be found (e.g. *´chocolate cake*).

As a consequence, further opinions as to a convincing explanation of stress variability need to be taken into account. From a semantic point of view, meaning relations among the elements of a compound may explain why some are left-stressed and others are right-stressed. Thus, all compounds are usually left-stressed but copulative compounds (e.g. *scholar ´*activist), those which express a temporal or locative meaning relationship (e.g. *summer ´night*, cf. Olsen 2000a, mentioned above), or those with a causative meaning which is usually paraphrased as “made for” or “created by” (e.g. *Shakespeare ´sonnet*), are right-stressed. Plag

(2006: 146-147), however, is able to cite some exceptions, such as *´man servant*, *´summer camp* or *´day job*.

Finally, analogy may also explain such stress variability, based on the fact that many N+N structures choose their stress pattern in analogy with combinations that have the same head, i.e., the rightward element:

(22a) street → ´Oxford Street > ´Main Street, ´Fourth Street

(22b) avenue → Fifth ´Avenue > Madison ´Avenue

The combinations with *street* as the second element here show leftward stress, whereas combinations with *avenue* as a second element show rightward stress. It follows, then, that [attribute + head] constructions show variable rightward and leftward stress. However, Plag (2006) considers that this variability cannot be explained in terms of lexicalisation, as Giegerich (2004) has proposed, asserting that "what is considered the effect of lexicalization in some approaches [cf. Giegerich 2004] would emerge naturally in an analogical system, in which existing (i.e., lexicalized) compounds influence new (i.e., non lexicalized) compounds to behave similarly." (ibid.: 147). As a result, both the type of semantic relation and analogy play an important role in the determination of the variability of stress assignment. As far as the status of N+N structures is concerned, Plag (2006: 144) remains "agnostic with regard to the issue of whether NN constructions should be analysed as compounds or phrases" and talks mainly about "NN constructs", even though he believes that the majority of N+N structures he uses in his article would be regarded as compounds by most analysts.

In a more recent study, based on a corpus of spoken discourse (*The Boston University Radio Speech Corpus*), Plag and others have proposed a further hypothesis regarding the

variability of stress patterns in compounds, in which the frequency of appearance of certain N+N constructs is taken into account: "(…) compounds with a relatively high frequency will show less variability than compounds with a relatively less frequency." (Plag *et al.*, 2008: 787). They present evidence that there is variability of stress patterns not only between types but also between tokens of the same type. As a consequence, it seems reasonable to suppose that variability in stress patterns is manifest in those N+N sequences which are less frequent; hence, when the token is low in frequency, there is a low representational strength, which implies that the stress pattern may be directed by the two constituent families to which N1 and N2 belong. Therefore, the constituent families suggest two competing stress patterns, and as a result the outcome will be unclear, giving way to variability. However, as Plag *et al.* (2008) themselves point out, this is merely a hypothesis, and requires further refinement.

3.1.3 Morphological properties of nouns as modifiers

As Warren (1993: 60) reminds us, nominal modifiers, because of their restrictive function, tend to lose their ability to be inflected and thus usually appear in singular form (e.g. ***book*** *seller*). There are even cases of nouns which usually have a plural inflection in their referential use (e.g. *trousers*) and lack the plural inflection when they modify another noun (e.g. ***trouser*** *press*). With this in mind, Adams (1973: 59) raises the possibility of considering the first elements in N+N structures as grammatically *neutral* rather than morphologically singular, arguing that on some occasions it is in fact the *s* genitive rather than the plural *s* that is lost (e.g. *pigtail* < *pig's tail*).

The lack of plural marking might also be a consequence of the reduced referentiality of noun modifiers, a conclusion drawn by Koptjevskaja-Tamm & Rosenbach (2005; cited in Rosenbach 2007) on the basis of web-based analysis. They found that the dependent *Bush* in *the Bush Administration* was less likely to be referred to in the previous or subsequent context

than in the case of a genitive like *Bush's Administration*. This implied that the modifying noun *Bush* was less salient, i.e., more backgrounded, than the genitive. However, as Quirk *et al.* (1985: 1334) point out, the plural attributive construction (e.g. *grants committee*) is on the increase, particularly in British English, where it is more common than in American English (see also Chapter 4, Section 4.5). The use of these plural modifying nouns may also be due to a process of institutionalisation. They are referred to by Quirk *et al*. (1985: 1334) as *exclusive plurals*: whereas the singular form is more generic and ambiguous, the plural form is not ambiguous and its interpretation is more accessible. They tend to occur with collective nouns and names of institutions as heads, and the stress tends to be on the premodifying plural, as in examples (23a) and (23b).

(23a) poetry books seller

(23b) book seller

In (23a) the modifying noun *books* is in plural form because it refers to a particular kind of books (more specific), whereas in (23b) the modifying noun is in the singular because it refers to books in general (more generic). Taylor (2000: 361) considers that plural forms, such as *sports* in the N+N structure *sports administrator*, are acceptable maybe because those plural nouns have been subject to semantic drift and have acquired a semantic connotation that is lacking in the singular form.

(24a) telecommunication → communication at distance

(24b) telecommunications → technology

The construction of an N+N structure with one or the other modifying noun will result in two different meanings, and thus the kind of specification will also be different. This can be seen as a consequence of something akin to Goldberg's (1995) *Principle of the No Synonymy of Form* (see also Bolinger 1977; Givón 1985; Wierzbicka 1988. Also mentioned in Chapter 2), which implies that the smallest change in the form of an item necessarily implies a change in its meaning. The use of singular or plural forms for modifying nouns can also be a reason to avoid ambiguities (e.g. *goods shop* vs. *good shop*). In spite of this, Taylor (2000) reminds us that this is an area in which many confusing and idiosyncratic exceptions exist.

Another morphological issue regarding nouns as modifiers has to do with irregular plurals. N+N structures can be made from irregular plural forms (e.g. *mice eater*) but rarely from regular plural forms (e.g. *books shop*), since, as Pinker (1994: 146) points out, irregular plurals are unusual and thus have to be stored in the mental dictionary as roots or stems (it is supposed that they are not to be generated by rule) and are attached to another noun in an N+N structure as independent stems. On the contrary, regular plurals are not stems stored in the mental dictionary but, rather, are formed by a rule; they are words which are assembled with an inflectional plural whenever this is needed, independently of their union to another noun, to form a new structure (whether lexical or syntactic). Interestingly, in an experiment with children discussed by Pinker, children constructed N+N structures *mice-eater* and *rat-eater* from *mice* and *rats*. They used the irregular plural form of *mice* but never *rats* in its regular plural form, even though they had no evidence from adult speech that this is how languages function. Thus: "(…) children automatically distinguish between roots stored in the mental dictionary and inflected words created by a rule." (ibid.: 147).

3.1.4 Suggested reasons for the use of N+N sequences

Given what has been said above, we may wonder why these constructions are needed in English, that is, why there is a need to express concepts by means of sequences of two or more nouns. As will be noted later on, the use of noun combinations is a very productive pattern for expressing new concepts. However, there are clauses and other syntactic resources which may convey the same meaning as N+N structures.

(25a) consumer complaints

(25b) the complaints which are expressed by consumers

Varantola (1993: 75) suggests why these compact sequences of nouns are used in PDE:

> Premodification is a functional means of creating compact packages of information. It is space-saving and non-redundant; it captures a static, crystallised image of an extralinguistic object, event or process shared by a set of readers. It makes no difference whether this set consists of the general public in a particular society or a group of specialists.

In contrast, longer sentences or postmodifiers give rise to more dynamic expressions, which describe, rather than classify, extralinguistic referents. N+N sequences are created with the supposition that they will persist in the language. Phrases such as *drug addiction*, it is supposed, will remain useful over time, whereas a relative clause like *the girl who is playing football with your friends* is transient, to be used at a specific moment for a specific purpose, without the expectation that it will constitute part of an inventory for a later use.

These, then, are some of the reasons used to explain the use of N+N sequences. In what follows, a more detailed account of the possible motivations for the use of complex nominal combinations will be presented.

3.1.4.1 Compactness

Levi (1978: 58) refers to compactness to explain the increasing use of these sequences of nouns from a Transformational Grammar point of view. Thus, what could have been said by means of a longer underlying sentence is now said through the juxtaposition of (usually) two words, which obviously results in a shorter combination. This can be linked to the idea of *economic motivation* (cf. Haiman, 1985: 133), whereby shorter structures tend to be favoured when the ideas expressed by them occur frequently in speech.

3.1.4.2 Availability

The formation of complex noun sequences is a recursive phenomenon, in that new items can be added in order to create compact packages of information (e.g. *A kitchen table* > *A restaurant kitchen table* > *A London restaurant kitchen table*). However, in this process, some of the components (such as verbs or prepositions) of the longer sentences that imply the same meaning as those compact packages are omitted, since they are considered superfluous. Varantola (1993: 72) explains that this lack of verbs and prepositions leads to a loss of explicit textual information and obviously requires more shared knowledge between interlocutors. As a result, the more familiar a concept is to interlocutors, the more *available* it is for both of them (cf. Baayen & Renouf, 1996: 141).

(26)

> Clinton and Gore made their foray into TV-talk politics after a **daylong bus caravan across central Florida** as they tried to pad a narrow lead in a state that last supported a Democrat for president in 1976. The Democrats were wrapping up their **Florida trip** with a **morning rally** at the University of Florida before heading on to Nashville and another unorthodox campaign appearance this time on the 'Donahue Show'. (FROWN A01 L111-118)

In (26), a news reportage extract from the FROWN corpus[10] in which the activities of Clinton and Gore during their electoral campaign are described, the phrase *a daylong bus caravan across central Florida* is introduced for the first time. Having made the reader aware of that trip to Florida, the journalist again refers to it a few lines later as *their Florida trip*, juxtaposing two nouns instead of employing the former long noun phrase. This is possible because the necessary information has already been delivered to the reader; information is now available to interlocutors through context, and hence there is no need to repeat all the words previously used to refer to this same extralinguistic reality (cf. Portero, 2007: 16-17). In (26) this also happens with information which is already available through cultural background or shared knowledge in the same extract: when talking about a *morning rally*, readers already know that this is a rally *which is held* in the morning. Consider also example (27).

[10] For reference see Chapter 4, Section 4.2.1.

(27)

> Jeffrey Heird, who resigned last year as the village's public works director, said he would seek a restraining order against the project because it did not include a special assessment for **owners of nine properties on Victory Lane** (FROWN A30 L86-89) (…) But to set up a special assessment district, five of the nine **property owners** would have to petition the village and agree to pay a share for the project. (FROWN A30 L121-123)

This extract is from a newspaper report also included in the corpus used in the current research. In the report, there is a first mention of some *owners* (L88-89), which is postmodified by two prepositional phrases *of nine properties on Victory Lane*, which give an explicit and precise account of what those owners possess and where. Further on (L122) there is a new mention of those owners, but this time, since the writer is aware of having already introduced the owners to the reader, this further mention is effected by means of an NP with a simple premodifier (*property owners*). This is obviously less explicit, but as Biber *et al.* (1999: 588) have pointed out, some implicit meaning relationships are now available through shared knowledge.

3.1.4.3 Predictability

Another reason for the use of N+N sequences has to do with the ability of speakers to predict the presence and role of a particular concept (cf. Baayen & Renouf, 1996: 142). Accessibility to that concept by the hearer or reader might be affected by several factors (cf. Givón 1989):

(i) Distance from last mention.

(ii) Recent mention of other potential referents.

(iii) Semantic information from within the clause.

(iv) Thematic information from the preceding discourse.

According to Givón, the first two factors are easy to measure in discourse, using text-based measurements of *Referential Distance* (RD) and *Potential Interference* (PI). *Referential Distance* refers to the number of clauses that have elapsed since the previous occurrence in the discourse, and *Potential Interference* quantifies the number of semantically compatible referents within the preceding three clauses. Factors (iii) and (iv), however, are much harder to measure. As a final remark on this issue, Givón (1989: 217) notes that there is a relation between the degree of predictability of a given referent and the phonological size of the grammatical device used to code it. This is known as the *Code-Quantity Principle*: "The less predictable/accessible a referent is the more phonological material will be used to code it", by which is meant that material which is highly predictable by the interlocutors needs less coding material, since the information provided is more available or highly activated in memory. Thus, in the case of example (26), the writer uses the combination *Florida trip* instead of a longer sequence of items because s/he already knows that the information is highly available in the memory of the readers, given that the referential distance (RD) back to the previous mention is very short.

3.2 Earlier analyses of N+N structures

The modification of nouns by nouns has been the object of study by various scholars during the 20th century. In what follows, I provide a brief overview of the different approaches that have been taken, especially of those dating from the last quarter of the 20th century.

As previously mentioned, nominal modifiers have been of interest since Byington (1926, quoted in Varantola 1984) condemned the use of these complex constructions because

of their ambiguity. N+N structures were subsequently discussed by scholars such as Bloomfield (1984 [1933]), Lees (1960), and Marchand (1969). However, it is in the 1970s that monographs on the topic start to appear. Li (1971) views structures of this kind as compounds which have the function of subcategorising the referents of nouns (e.g. *sugar bowl, rice bowl*). They also provide names (e.g. *Liberty Bell*) and serve as a means for telegraphic speech (e.g. *cradle song*). These structures are seen to be generated through productive rules, and are formed by two constituents. There is a condition within the compound which limits the semantic relations of the constituents and these determine which nouns can appear in the construction. Li (1971) also considers that there are some exceptions to this process, as in the case of those structures created for telegraphic speech at a given moment, which are thus not part of a productivity process. This idea is refuted by Downing (1977: 816), who points out that "(…) any existing compound, telegraphic or not, may serve as the model for the analogical formation of any number of novel compounds."

From a Transformational Grammar perspective, Levi (1978) provides a thorough analysis of the syntax and semantics of what she calls *complex nominals*. Her main hypothesis is based on the idea that complex nominals are generated from earlier underlying sentence structures. They may be created by *deletion* of the predicate (e.g. *drugs death* → *death caused by drugs*) or by *nominalization* (e.g. *city regulations*). For *deletion*, Levi (1978) built up a set of predicates (*cause, have, make, use, be, for, in, from, about*), which she referred to as RDP (*Recoverably Deletable Predicates*). These predicates are deleted in the process of the transformation from an underlying sentence into a surface structure. For example, the complex nominal *disease germ* derives from the underlying structure *a **germ** causes a **disease***. This rule of *deletion* has access to the semantic content, which makes it possible to identify the (omitted) RDP. As can be seen, the RDPs are extremely basic, which implies that,

from a semantic point of view, it is easy to establish a potential underlying structure for any given N+N structure.

As noted in 3.1.4.1, above, Levi (1978) argues that the main function of complex nominals is the communication of information in a compacted way. Also, complex nominals are naming devices, a characteristic which clearly moves N+N structures further away from syntax and brings them close to (or even within) the field of morphology. In spite of this, she still distinguishes a modifier and a head inside each complex nominal, which implies that their structure is still that of a syntactic construct. They seem to be highly productive as a system, owing to their compacted structure. In addition, their formation is produced with a reduced loss of semantic content, since all the elements of the underlying sentence may be present in the new structure (e.g. *senatorial industrial investigations* → *senators investigate industry*), or the elided elements may be easily recovered (as in the case of *drugs death*). For the purposes of the current review, the most interesting contribution in Levi's (1978) work is perhaps the idea that complex nominals undergo a process of semantic specialization. She establishes a continuum of *derivational transparency*:

Figure III Continuum of derivational transparency as shown in Levi (1978)

Whereas the most transparent complex nominals are derivable through regular syntactic processes, the meaning of the most opaque complex nominals cannot be easily inferred; hence they will eventually warrant their own dictionary entries.

Bauer (1978: 54) establishes three features to distinguish a compound: morphological, phonological and semantic, when asserting that "[T]he compound, it is claimed, shows a degree of phonological, morphological and semantic isolation." Those criteria, which will be discussed in Section 3.4.1, entail several problems, such as that of stress placement and its variability, already referred to in Section 3.1.2, above.

Warren (1978) established the semantic patterns of noun compounds. She considers these structures as indivisible semantic-syntactic units:

(i) in the middle of which no adjective can be inserted (e.g. **girl* ***beautiful*** *friend*)

(ii) the first element cannot be inflected for number (e.g. ****girls*** *friend*)

(iii) determiners preceding a structure of this kind refer to the second element but never to the first constituent (e.g. ***these*** *girl* ***friends***)

Once again, N+N structures are placed within the field of morphology. Warren (1978: 47) talks about a *comment-topic* semantic structure, in which the comment refers to what is said about the topic, whereas the latter refers to what is being talked about. The comment can have a classifying or an identifying function. Thus, she distinguishes six different types of semantic relations in N+N structures:

(i) A is something which constitutes B, or vice versa: *paste wax*.

(ii) A is something of which B is a part or feature or vice versa: *board member*.

(iii) A is the location or origin of B in time or space: *sea food*.

(iv) The comment indicates the purpose of B: *pie tin*.

(v) The comment indicates the activity or interest with which B is habitually concerned: *fire department*.

(vi) A indicates something that B resembles: *bullet head*.

Within each semantic class there are further divisions and subdivisions. Each of these semantic classes admits prepositional paraphrasing (e.g. *metal sheet* → *sheet of metal*). However, Warren (1978: 49) makes it clear that "prepositional paraphrasing will, however, not work whenever idiomatization of the meaning of the compound has occurred, since this is tied to the compound form." Thus, for example *Sunday school* and *school on Sunday* are not complete synonyms.

Bybee (1985) examines differences between lexical and syntactic compounds. While in the former the resulting unit is a complex structure whose meaning is not predictable from a summation of the meanings of its parts, in the latter the units combined also exist independently as words. The results of the compounding process are lexicalised and tend to gradually lose their semantic and phonological transparency (Bybee, 1985: 106).

The previous review reveals that in a first stage of the study of N+N structures, discussion was restricted to the consideration of these structures as morphological items, and the possible distinction between syntax and morphology was not a matter of great interest. Meaning relations between N+N constituents were the object of attention, as well as their productivity as a word formation process. An interesting topic which begins to emerge during this stage in the research is the process of lexicalisation that N+N structures may undergo.

The second stage in the study of N+N structures, it might be argued, takes place during the 1990s, when N+N structures begin to attract the interest of those working in textual genre studies and sociolinguistics. Raumolin-Brunberg (1991) conducts an in-depth analysis

of the noun phrase in 16th century English and underlines the early existence of common nouns functioning as pre-head constituents within noun phrase structure. However, the range of modifying nouns by that time is very restricted. Basing her research on a corpus of texts by Sir Thomas More's writings, she found that all common nouns appearing in pre-head slots are simply titles denoting rank, social status or profession (e.g. *king*, *master*, *doctor*). A smaller proportion of nouns exists, these denoting family and household relations (e.g. *daughter*, *servant*, *son*). No other nouns appear modifying nouns. Furthermore, the head nouns are invariably human proper nouns.

Jucker (1992) introduces an interesting element into the study of nominal modification, taking a socioeconomic approach to account for N+N structures. He compares the different use of N+N structures in two kinds of newspapers, tabloids and broadsheets, finding significant differences in the rate of nouns as modifiers as compared to other premodifying categories (adjectives, participles, genitives). The social implications are based on the idea that the higher educational profile of the readership of the *up-market* papers goes together with a higher proportion of adjectives in premodifying position (ibid.: 152). The resulting data also show more significant differences between premodifying categories according to newspaper section (i.e., sports, home news, foreign news, business, arts) than according to newspaper category (i.e., *quality* vs. *down market*). Thus, *quality* newspapers resort to nouns in prehead position less often than *down-market* papers; in fact, more than a third of all premodifiers in prehead position are adjectives, while the proportion in *down-market* papers is less than a fifth, which also implies that there is a much higher proportion of nouns than adjectives as premodifiers in *down-market* papers, as noted in Jucker (1992: 152). Also, the arts and foreign news sections show a higher rate of adjectives than nouns as

premodifiers; conversely, business, home news, and sports display a higher number of nouns in premodifier position, the last of which contains the highest proportion of all.

Varantola (1993) discusses the acceptability of N+N structures as devices used to achieve compactness, which provides an explanation as to why nominal modifiers are so frequently used, as well discussing why there may be opposing opinions as to the acceptability of N+N structures in the language. She is aware of that the widespread use of these constructions is sometimes criticised, since they make for compactness at the expense of explicitness. However, arguments in favour of the use of nominal modifiers are concerned with their communicative function and whether they are understandable within a given context. Consider examples (28a) and (28b).

(28a) That child over there has a serious problem (…) The *problem child* has left school

(28b) That child over there is causing the students some problems (…) *The *problem child* has left school

Whereas in (28a) the use of the noun *problem* makes sense, in (28b) it does not, and the use of the adjective *problematic* would be more appropriate. According to Varantola (1993), this implies that the form of a given message must adapt to the content of that message (cf. also Wells 1960).

Varantola (1993) also makes reference to N+N structures as parts of a *syntactic building block*. According to this, N+N constructions appear in a context in which there is a contrast between the static nature of nominal constructions and the dynamic nature of verbal expressions (cf. Lehmann & Moravcsik, 2000: 732).

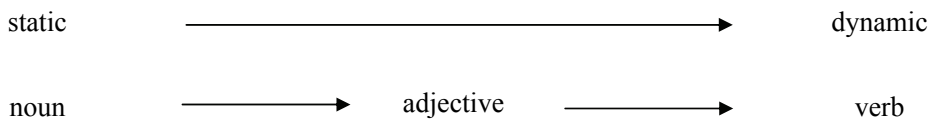


Figure IV Contrast between the static and dynamic nature of nouns and verbs

During the 1990s, the putative second phase of research interest into N+N structures, the status of these structures itself becomes a source of debate. Bauer (1998) works from the assumption that the criteria used to discern whether an N+N structure is a compound or a noun phrase are not clear enough. The criteria against which he provides evidence are the following:

(i) Compounds are listed.

(ii) Compounds are written as a single word.

(iii) Compounds have fore-stress.

(iv) The first element in a compound is syntactically isolated.

(v) Compounds do not permit coordination.

(vi) The head of a phrase can be replaced by *one*.

The final stage in this review of the study of N+N constructions begins, arguably, with Biber & Clark's (2002) work on the spread of premodifiers in English, whose recent increase in use is manifest. The development of the mass media and of information and communication technologies, such as the Internet, has had an essential role in that increase. What was labelled the *Global Village* (McLuhan 1969) two generations ago has today acquired its fullest expression, and our current communicative realm undoubtedly favours the

use of short and direct linguistic devices to communicate effectively, amongst these N+N structures.

A rather different analysis is that of Benczes (2006: 10), who examines the semantics of metaphorical and metonymical N+N combinations (e.g. *sandwich generation*, *snail mail*) from a cognitive linguistic perspective, claiming that, once an N+N structure has been coined, it is already a compound word, whether or not it subsequently becomes established in the lexicon. Her main hypothesis is that the differences between *endocentric* N+N compounds such as *apple tree* and *exocentric* N+N compounds (which she refers to mainly as *creative compounds*[11]) such as *hammerhead* do not depend on more or less transparency of meaning but on creativity. These latter compounds, then, are created by means of "(…) a more imaginative, associative and creative word formation process, based on conceptual metaphor or metonymy" (ibid.: 184). Such compounds are not semantically transparent and can be analysed by means of "metaphor, metonymy, blending, profile determinacy and schema theory" (ibid.) within a cognitive linguistic framework.

Rosenbach (2005) examines the spread of N+N constructions from the second half of the 17th century to 1990. She aims to demonstrate, through a corpus analysis, that the Late Modern English period plays an essential role in the increase of these constructions. Using the British English news sections of the ARCHER corpus, she asks whether N+N structures have become more frequent *per se*, not just because nouns in general have become more common in English[12]. A comparison was made between the frequency of all nouns and of N+N structures in the relevant sections of the corpus, taking time intervals of fifty years, from the second half of the 17th century to the second half of the 20th century. The results indicate that

[11] See Section 3.4.2.1 for an explanation of these concepts.
[12] We wonder whether she is referring to the increase in vocabulary items to name new things. Other works such as Potter (1975: 101) have pointed out that the growing orientation to information in our society is reflected in an increasing nominal style.

the increase of N+N constructions is consistent and that it does not depend exclusively on the increase of the use of nouns. She also asks whether this increase in use of N+N constructions is not only quantitative but also qualitative. Consequently, she analysed the role of animacy in the noun that functions as a modifier in the structure, that is, the leftmost element (e.g. *book store* vs. *John store*), and observed an increase in the use of noun modifiers denoting animacy (i.e., structures such as *John store*). The same results were obtained in scientific texts from the same period.

		HUMAN	COLLECTIVE	INANIMATE
NEWS	1700-1799	1	3	64
	1800-1899	4	16	117
	1900-1990	25	78	240
SCIENCE	1700-1799	0	3	85
	1800-1899	0	9	169
	1900-1990	11	7	537

Table 1 Distribution of N+N structures in news and science according to the findings in the ARCHER corpus (based on Rosenbach 2005)

She concludes that the increase in the number of N+N structures is not only due to the increase of nouns in general and that N+N structures have extended to collective and human modifiers from the 19th century onwards, which implies that their spread is not only a matter of increased frequency but also an extension in the contexts in which those N+N sequences may occur.

Finally, the work of Giegerich (2004) and Plag (2006) on the variability of stress assignment in N+N structures also falls within this period in the study of such structures. These two studies were discussed in Section 3.1.2, above.

To summarise, various studies of N+N structures indicate that the question of nominal modification or compounding is still a matter of debate. Additionally, there seems to be no current solution to questions such as stress variability and the overlap with other structures like genitives or postmodifiers. Different approaches have shown that N+N structures are a phenomenon in constant development.

3.3 Ambiguity in N+N sequences

The phenomenon of nominal modification is recursive in that new modifiers can be added to the head to specify and characterise its meaning. This possibility is also extended to nouns as modifiers, and as a result different combinations are obtained. This recursiveness is obviously limited by constraints of a psychological and stylistic nature. Hence we may find structures such as example (29a), with five component parts.

(29a) tonnage scale air separation plants (LOB J07 L29)

However, longer and more complicated structures are not at all common, even though a few examples do occur in my data.

(29b)

> The Queen has appointed a *Tory, aristocratic, soft drink, beer, insurance, gas light and coke, match, banking and estate company chief* to be Governor-General of Australia. (LOB A13 L124-126)

As can be seen, this is a rich phenomenon, allowing the creation of an infinite number of constructions depending on the speakers' needs at a given moment. However, the use of premodifiers implies a reduction in explicitness, since there are items carrying meaning -such as verbs or prepositions- which occur in postmodification by prepositional phrases or relative clauses, but which are elided in nominal premodification. This reduction in explicitness may affect the meaning relations between the elements in an N+N construction, making it unclear or unpredictable from the semantic point of view (e.g. *tree reader* vs. *a person who is reading under a tree*). For that reason, the following sections are devoted to examining ambiguity in N+N structures from three perspectives, syntactic, semantic and categorial.

3.3.1 Syntactic ambiguity

Within noun phrase structure, we may find adjectives and nouns with a premodification function. When only two nouns are combined (e.g. *school leaders*), the interpretation of the sequence is generally straightforward: a noun *school* modifies the head of the noun phrase *leaders*. As a result, there is no difficulty in ascertaining the semantic composition of the entire phrase, hence its overall meaning. However, difficulties appear when dealing with longer sequences.

(30a) stock market news (FROWN A34 L113)

Longer sequences of nouns require some extra attention in order to understand the internal relationships that their component parts display; that is, each of the component parts in a longer N+N sequence has its own function and this function must be known in order to understand the overall meaning of the nominal sequence. The above example, for instance, would break down as follows:

(30b) [[stock market] news]

The whole expression *stock market* modifies the head noun *news*, and *stock* in turn modifies *market*. This is an example of what Payne & Huddleston (2002: 447) term submodification, and in this case the modifier *market* itself is internally modified by *stock* (see also Chapter 2, Section 2.2.3).

The situation may be even more complicated with examples like (31a).

(31a) bank insurance system (FROWN A34 L48)

One cannot be sure about the internal relationship among the three constituents here. The overall meaning may be that of an *insurance system* from a *bank*, or a *system* of *bank insurance*.

(31b) [bank [insurance system]] vs. [[bank insurance] system]

Of all the possible interpretations that an N+N structure may have, speakers choose the one that is most contextually plausible. Of course, when an extralinguistic referent is "in the air" ambiguity fades away. The information from the shared cultural background within a community of speakers is also a potential source of disambiguation. Other such sources, in written English, include the use of hyphens (e.g. *wire coat-hangers*, *public-school measure*) and capital letters (e.g. EUROPEAN COMMUNITY attempts). However, extremely complicated cases also arise, such as example (32a) (Hirst, 1987: 144).

(32a) Airport long term car park courtesy vehicle pickup point

This long and messy N+N sequence was taken by Hirst from a sign at Gatwick Airport. Its length challenges the psychological and stylistic constraints of any reader. The bracketing of such a sequence could be as shown in (32b).

(32b) $[^{1}[^{2}[^{3}\text{airport}[^{4}[^{8}\text{long term}]_{8}[^{7}\text{car park}]_{7}]_{4}]_{3}[^{6}\text{courtesy vehicle}]_{6}]_{2}[^{5}\text{pickup point}]_{5}]_{1}$

Given the complexity of this phrase, we must ask whether the information it purports to communicate can in fact be retrieved by those people for whom it is intended.

3.3.2 Semantic ambiguity

Determining the meaning of a word or a sequence of words is often a difficult task, not only because one single noun may have more than one meaning (e.g. *rattle* may refer to "a baby's toy" or to "a series of short loud sounds"), but because the combination of that noun with another one can give rise to ambiguous relational meanings (e.g. *rattle snake* might mean that "the snake rattles" or that "the snake has a rattle") (cf. Portero 2004).

Warren (1978) explains that this ambiguity of some N+N structures is due to some sort of incompleteness; that is, some structures of this kind, such as *air strip* ("a strip for planes" instead of "a strip for air or made of air"), are incomplete, the complete form in this case being *air plane strip*. The abbreviated form is the result of the fact that the information of the elided element is coded by one of the elements which actually appears in the final structure. The elided element has a clear information value, but it has been elided because it is convenient for the interlocutors, who thus manifest a tacit agreement that this exclusion does not alter the reference of the whole nominal group. If it is indeed the case that this kind of

pact is extended to the whole community of speakers, then a short combination has already been established, such as *fire box* instead of *fire wood box*. There are, however, cases in which real ambiguity remains. This is the case with structures such as *woman doctor*, which Warren (1978) regards as truly ambiguous (is the doctor a woman, or does the doctor work with women?). Notice also that whereas an N+N structure may only have one referent, there is more than one possible relationship between the constituent elements, as in:

(33) bath water
- *water for the bath*
- *water in the bath*
- *water from the bath*

Ambiguity can also arise when the same extralinguistic reality may be expressed in more than one way:

(34) candlewick
- *Wick that is part of a candle* (whole-part)
- *Wick that is in the candle* (place-object)

As Warren (1978) points out, the selection of one or the other is arbitrary, and context often does not help. Modification in such cases tends to be unacceptable; however, there are ways

of solving these meaning difficulties. Levi (1983: 189) notes several disambiguation strategies of a semantic and pragmatic nature. They are based on the following assumptions:

(i) The regularities which define the formation of N+N structures and pragmatic principles which define the best way of creating these complex constructions in order to produce the intended communicative effect (i.e., we may know the meaning of *leisure shop* by analogy with other structures with the same formal regularities such as *book shop*).

(ii) The common referent within the speech community (i.e., we may know the meaning of a given N+N structure if we are aware of the referent from the extralinguistic reality).

(iii) Lexicalised meanings (i.e., *iron curtain* is already known by the speech community since its meaning has been institutionalised, in spite of the fact that it has nothing to do with the individual meanings of each of its component parts).

(iv) Naming patterns based on the semantic class of head and modifier and their semantic relationship (i.e., activities in a time or a place like *morning lectures*).

Ambiguity in N+N combinations has been a focus of study in psycholinguistic research. Most of this work is based on experiments carried out to test how the meaning of N+N sequences is disambiguated. Costello & Keane (1997), for example, have based their research on cognitive assumptions, and consider that the linear distribution of nouns within N+N combinations plays an important role in diminishing semantic ambiguity. They distinguish between natural kind and artifact nouns on the one hand, and superordinate and

basic level nouns on the other (cf. Rosch *et al.* 1976). As for the former, natural kind nouns are said to be those concepts not created by man, such as *girl, fish, flower*, etc., whereas artifact nouns have been created by man (e.g. *computer*, *book*, *car*, etc.). As for the latter, superordinate nouns are those which refer to more general concepts, whereas basic level nouns refer to more specific referents (e.g. *vehicle* vs. *car*). Given these differences, they hypothesise that the appearance of N+N combinations in a language will be constrained by the tendency of specific classes of nouns to combine in an unambiguous way. Since they believe that the main intention of these combinations is purely informative, then these combinations must entail the least possible ambiguous information.

They based their research on field work with a small number of subjects, who were asked to collect the most familiar N+N combinations they knew over the course of a 30 minute session. This was followed by a classification of those items according to the variables mentioned above: whether the component parts of those N+N structures were considered to be members of a superordinate or basic level of nouns, or whether they were considered to be artifacts or natural kind nouns. The results show that there are more natural kind nouns (e.g. ***girl*** *friend*) and basic level nouns (e.g. ***car*** *crash*) in modifier position than in head position. Conversely, there are fewer artifacts (e.g. ***book*** shop) and superordinate level nouns (e.g. ***vehicle*** *fleet*) functioning as modifiers. Since it is the modifier or first noun which usually restricts the reference of the second noun or head of the N+N combination, the fact that this modifier position is most of the time filled by natural kind and basic level nouns means that such a distribution actually contributes to avoiding ambiguity, or "polysemy" in their own words, within N+N combinations.

Similarly, Gagné & Shoben (2002) carried out two experiments in order to determine whether the interpretation of an ambiguous N+N sequence is analogically influenced by the

exposure to previous similar combinations. As far as the first experiment is concerned, they hypothesised that it is easier to correctly interpret an N+N combination when the prime combination uses the same relations as the target sequence, for example, from *adolescent magazine* ("a magazine for adolescents") to *adolescent doctor* ("a doctor for adolescents") to *animal doctor* ("a doctor for animals") than when the prime combination uses a different relation, for example, *country doctor*, *adolescent experience*. Consequently, for target combinations they selected combinations which were ambiguous in that they could have at least two meanings (e.g. *adolescent doctor* can be "a doctor for adolescents" and "a doctor who is an adolescent"). For the prime combinations, they selected three different kinds of combinations: those which used the target's dominant relation, those which used the target's subdominant relation, and those which used other relations than the ones of the target combination. Thus, from the prime combinations:

(i) *adolescent student* (subdominant)

(ii) *adolescent magazine* (dominant)

(iii) *adolescent experience* (other),

they were supposed to interpret an ambiguous target combination, such as

(iv) *animal doctor*

as "a doctor for animals", since it is taken from the dominant prime combination, *adolescent magazine*, interpreted as "a magazine for adolescents." A total of 112 combinations were generated, each of which generated at least two different interpretations. The participants

were 72 undergraduate university students who were native speakers of English. They saw the prime combinations, gave an answer to them, and checked their answers by looking at the target combinations only once. The resulting data showed that the dominant prime combination influenced the interpretation of the target combination.

As for the second experiment, the participants had to generate, rather than verify, a definition for an ambiguous target combination. The participants were 40 undergraduate university students, again native speakers of English. Almost 90% of the interpretations used either the subdominant and dominant combination, favouring the use of the dominant combination.

These results demonstrate that it is not necessarily the case that previous contextual information influences the interpretation of a combination such as an N+N sequence. In fact, a single combination can affect the interpretation of the following one.

Finally, semantic ambiguity has also been the object of study in the field of Computational Linguistics, in areas such as automatic translation in information extraction. The literature on the topic focuses mainly on solving processing problems that N+N sequences present to natural language analysers. Such problems are related to the determination of the length of N+N sequences (and thus to their limits), the interpretation of the ambiguous semantic relations between their component parts, and the establishment of their meaning as a whole, which usually depends on a given context. As an illustration, Hirst (1987: 78) points out that determining the meaning of a combination of words does not only depend on context but also on local *cues*, such as the meaning of nearby words. First of all, there must be a *script* which is related to the contextual recognition and which helps to decide on the meaning of the combination (e.g. *guitar player* is included into the script of "music-making"). These cues may be, among other things, the semantic associations between the

words which are part of the nominal combination. Thus, on some occasions combined words are not as ambiguous as they appear, since only one of the meanings of one of them can fit with the meaning of the other. For instance,

(35) fruit stone

is not an ambiguous combination in spite of the fact that *stone* may have two different meanings, namely "a mass of hard mineral matter" and "a hard inner layer of the pericarp of some fruits"; the second meaning is the only one that fits with *fruit* here.

3.3.3 Categorial ambiguity: gradience and conversion in N+N structures

Since our focus here is on the function of nouns as modifiers, which differs from their prototypical function as head of noun phrases, and since that function is typical of adjectives, we may wonder whether nouns as modifiers are in fact nouns at all, or whether they undergo a process of conversion from nouns into adjectives.

As a first step here, we may consider what has been understood as a *category* over the course of linguistic scholarship. There seem to be two different views. The first is an Aristotelian vision of class membership, which implies that there are no intermediate categories (i.e., membership in a category is governed by the strict rule of the *excluded* middle) since the classic categories (noun, verb, adjective, and adverb) are well-defined and delimited. From this assumption it follows that there is no possibility for gradience between grammatical categories. The second viewpoint supports the idea that there are no clear-cut boundaries between grammatical categories, and thus gradience is a habitual phenomenon. This is the position held by cognitive linguists, Langacker (1987) being a good illustration. Furthermore, according to this view, categories have prototypes, which tend to be the most

typical members. As a result, linguistic items show some properties which are more or less prototypical of the category they belong to, again implying that there is gradience. This can explain how it is that nouns can function as modifiers, even though they prototypically play the role of head of noun phrases.

One problem we may encounter when dealing with this question has to do with the confusion between form and function. Whereas nouns may function as modifiers, this does not imply that nouns are adjectives or like adjectives; that is, they exhibit the criteria for the function of adjectival categories, but not for the form. Huddleston & Pullum (2002) criticise the position of traditional school grammars, which tended to characterise these nouns –such as *government* in *government inquiry*– as adjectives. They also condemn their definition as "nouns used as adjectives", as in Curme (1935), who viewed *boy* in *boy actor* as a "noun used as an adjective", and Zandvoort (1975), who considered that nouns may be said to function as adjectives when they are used attributively. Such a position entails confusion between category and function, since nouns of this kind are used as attributive modifiers but are still nouns. Actually, there are good reasons why modifying nouns cannot be thus considered as adjectives; they do not exhibit the characteristics of adjectives such as grading, and cannot take adverbial dependents.

(36a) *a very government inquiry vs. a very cautious inquiry

(36b) *a more government inquiry vs. a more cautious inquiry

Furthermore, as Marchand (1969: 361) points out: "No transposed substantive can be called an adjective unless it has received a categorical marker", that is, unless there has been some kind of explicit change in form. So, in the case of *government inquiry*, *government* is a noun

which has acquired the property of modifying another noun. This implies that it is simply *less* nominal than *government* in cases such as *the government*, where it is head of the noun phrase. Also, *government* in modifying position cannot be pluralized, another property of adjectives. Hence, *government* in that position is still a noun but obviously displays some properties which tend to be exhibited by prototypical adjectives. This is an illustration of the process of *intersective gradience* which items of this kind may undergo. As defined by Aarts (2007: 124) "IG [intersective gradience] involves two form-class categories α and β and obtains where there exists a set γ of elements characterized by a subset of α-like properties and a subset of β-like properties."

Rosenbach (2005: 546; 2007: 147) has also discussed the question of the category of premodifiers. She considers that, to the extent that nouns can also be premodifiers in noun phrase structure, it is difficult to distinguish them from adjectives, because they fulfil the same function as adjectives prototypically do. In spite of this, she concludes that noun modifiers should be regarded as nouns and not as adjectives. Denison (2001) recognises that diachronically there is a movement of some modifying nouns into the class of adjectives, and that there is thus intersective gradience from noun into adjective by some nouns in modifying position, such as *fun* and *key*. In the case of *fun*, for example, it is used as a modifier in attributive and predicative position (e.g. *a fun home*, *that new game is fun*). Denison even cites an example with a superlative ending, *funnest*, pointing out that this is "a sign of full morphological adjectivehood" (2001: 128). As far as *key* is concerned, there is a longstanding use of this word as a noun modifier (e.g. *key problem*), as recognised by the OED, which states that *key* is "passing into adjective in the sense of 'dominant', 'controlling', 'chief', 'essential', especially designating some person or thing that is of crucial importance to others." The premodifier *key* can also be found modified by adverbs (e.g. *stress is a* ***very key***

factor), and in addition can be used in predicative position (e.g. *the agreement of a mutually acceptable reserve is* ***key***). Consequently, Denison (2001: 129) argues that there is no simple switch from the noun into the adjective category, but rather a series of transitions from one category into the other. These small transitions will depend on the adjectival properties that the noun may acquire. Hence:

(i) It cannot be pluralized (e.g. *school measure*).

(ii) It can be coordinated with an adjective (e.g. *ovarian and breast cancer*).

(iii) It can take degree modifiers (e.g. *very root settings*).

(iv) It can display comparative/superlative forms (e.g. *the funnest iPod ever*).

(v) It can be used in predicative position (e.g. *Cooperation is key to organic agricultural project*).

If it is the case that a noun exhibits these properties, then a process of conversion has taken place, whereby the word has changed its syntactic category without any related change of form. Nevertheless, noun to adjective conversion is very rare in English, the opposite being a more common phenomenon (i.e., conversion from adjective to noun: *female*, *professional*; cf. Bauer & Huddleston, 2002: 1640-1643). Conversion is considered by some as a special case of derivation, in which case it also receives the name of *zero-derivation* (cf. Marchand 1969), but others believe that conversion is a distinct phenomenon from derivation (cf. Bauer & Huddleston 2002). For adherents to the former view, the word is supposed to have a zero-affix, that is, a covert affix through which the word is derived from a source or root category. Authors like Bauer & Huddleston (ibid.: 1641), however, prefer to say that there is no affix at

all, and in doing so avoid further problems, such as determining the number of zero-affixes and how to distinguish between them.

Conversion can be of two kinds: complete or partial. As for the former, the converted word takes on all the features which are characteristic of the category into which it has been converted and ceases to belong to the source category. In the case of partial conversion, the converted word takes on only some of the features which characterise the new category, and maintains some of its original features. This last kind of conversion is related to *multiple-class membership* (cf. Croft 2001). Thus, in *maiden voyage*, *maiden* can be considered to be an adjective because it has a different meaning in attributive position ("first" or "inaugural") than it does as the head of a noun phrase ("young unmarried woman"). As a result, change of meaning can also be added to the properties that the noun may acquire listed above.

Given these distinctions, it may be concluded that conversion is a gradient phenomenon. As already noted, not many nouns undergo a complete process of conversion, and most typically nouns show some but not all of the properties which are characteristic of the adjective class when they occupy premodifying position. Put simply, then, in the majority of cases what we find are nouns which are less prototypical than others within their own category.

3.4 The boundary between syntax and morphology

As we know, the status of nouns when filling a slot other than their prototypical one (i.e., head in noun phrase structure) has been a source of debate. The main assumption of the present investigation is that such nouns are syntactic constructs, which nevertheless become in many cases components of morphological constructions or complex words (see also Payne & Huddleston 2002). However, some scholars believe, on the contrary, that all N+N structures are generated in the lexicon and are thus compounds (cf. Levi 1978; Warren 1978;

Benczes 2006), while yet others claim that there is no evidence for a clear-cut difference between lexicon and syntax in the generation of N+N constructions (cf. Bauer 1998). Furthermore, Liberman & Sproat (1992) find no evidence to suggest a lexical provenance for N+N structures, whereas others simply do not provide a concrete answer to the question (cf. Plag 2006). Nonetheless, what remains indisputable is the fact that N+N constructions are on the rise, and as such the reasons why such a phenomenon is constantly increasing in Present Day English must be found.

Spencer (2000: 312) draws attention to the status of words as *anaphoric islands*, which implies that words are supposed to be closed units, inaccessible to syntactic processes[13]. However, he points out that there are cases in which parts of words seem to be actually manipulated by syntactic processes, and sometimes morphological processes such as word formation seem to have an influence on phrases which, clearly, have been formed by syntactic processes. Thus, in the same way as syntax concatenates words to form phrases, morphology concatenates morphemes to form words. This implies a dichotomy between syntax and morphology, but also allows us to think that there may be some inherent characteristics in N+N structures which correspond both to those of syntactic structures and morphological items.

In the event that N+N structures could be proved to be syntactic in nature, they should exhibit the characteristics of other syntactic combinations, such as modifier + head noun in noun phrases. Thus, they should follow the pattern of right-hand or end-stress, since stress in noun phrases falls on the head element (e.g. *brick ˊhouse*). In terms of semantics, N+N structures should be fully transparent, as modifier + head combinations, since the meaning

[13] The existence of anaphoric islands is part of the *Lexicalist Hypothesis* (cf. Katamba 1993), developed as a reaction against Generative Semantics, an approach to semantics and syntax whereby syntactic rules have free access to the internal structure of words. According to this, syntactic rules can manipulate the internal structure of complex words (cf. Postal 1970; Lakoff 1971).

would be directly inferred from the overall meaning of the component parts. Also, N+N constructions ought to be fully productive, and hence allow the possibility of adding new modifying elements to the same head noun to form new referring structures. Finally, from a semantic perspective they ought to display no internal argument structure, implying that both are arguments of an externally inferred predicate. Consider example (37).

(37) a brick house → the house **is made of** brick

in the same way as in *a large dog* (= *a dog that **is** large*) the predicate is also externally inferred.

On the other hand, if N+N structures are to be considered lexical items, then they should share the characteristics inherent to morphologically complex nouns such as *corkscrew*. Owing to their idiosyncratic meaning, then, they must be subject to listing. They would also be expected to be left-headed (cf. Lieber 1992), and their constituent parts would not allow modification or coordination independently (cf. Bauer 1978; Lieber 1992; Carstairs-McCarthy 1992; Payne & Huddleston 2002). In addition, there would be no possibility of replacing one of the constituents by *one* or another anaphoric device (e.g. * *a bus driver and a truck one*).

Taking all this into account, there is clearly a difficulty here in deciding whether a given N+N structure should be classified as a morphological item or a syntactic phrase. And in the event that we consider these structures to be compounds, we may also ask how some of them have syntactic properties. In the following section I will review the criteria which have traditionally been used for the definition and distinction of N+N structures as either morphological compounds or syntactic constructions.

3.4.1 Criteria for the definition of the status of N+N structures

As noted briefly in Section 3.2, above, Bauer (1978: 54) puts forward three criteria for the identification of nominal compounds: "[T]he compound, it is claimed, shows a degree of phonological, morphological and semantic isolation." From a phonological point of view, compounds carry stress on the first element, while phrasal constructions have two different foci for stress, even though one tends to be stronger than the other.

However, as far as the stress criterion is concerned, some problems and inconsistencies exist, as discussed in Section 3.1.2. Giegerich 2004 (see also Aronoff & Fudeman 2005) observes the dependence of stress assignment not only on the structure of N+N constructions themselves, but also on analogy and the semantic relation between the constituents of an N+N sequence (cf. Plag 2006).

Giegerich (2005a/b) distinguishes between two kinds of attribution, ascriptive and associative:

(i) **Ascriptive** attribution is prototypical of adjectives, both in attributive or predicative use. It establishes a direct meaning relationship between the modifier and the head which is being modified (e.g. *beautiful picture* → the picture is beautiful). It thus expresses a **property** of the head noun.

(ii) **Associative** attribution is a property of only some adjectives, when used as attributive modifiers. It establishes an indirect meaning relation between the modifier and the head which is being modified (e.g. *beautiful dancer* → the dancer is not beautiful but the activity of dancing which s/he performs is beautiful, thus *s/he dances beautifully*). Thus, it refers to an **entity** associated with the head noun.

This distinction can also be applied to nouns in attributive position. Thus:

(i) Nominal ascription: *boy actor*.

(ii) Nominal association: *milk man*.

Sometimes there are doublets, as in the case of *woman doctor*, which may be considered to be "a doctor for women" (hence, associative) or "a doctor who is a woman" (hence, ascriptive). Contextual information will help to solve the ambiguity.

Adjectives with associative properties and nouns tend to be more lexical than phrasal, since their meaning is often more encrypted, obscure or opaque, that is, they have undergone a process of semantic lexicalisation. However, not all lexical N+Ns have fore-stress (some of them show end-stress, which is typical of syntactic phrases). For this reason, Giegerich concludes that it is the distinction between associative and ascriptive attribution that serves as a criterion to distinguish between compounds and phrases. Thus, it is not stress placement which defines and distinguishes phrases from compounds. Furthermore, the fact that lexical N+N structures show end-stress indicates that stress is one of the characteristics within a gradual process of lexicalisation and that, as a result, some N+N structures fall somewhere between lexicon and syntax. In other words, the lexicon-syntax divide, itself constructed with reference to three levels, namely syntax, semantics and phonology, shows in certain cases an overlap with the following potential divergences (Giegerich 2005b):

(i) Syntax-semantics mismatches → forms that are lexical on semantic grounds (i.e., they are semantically opaque) are not supposed to allow pro-one; however, *cigarette end* does in *a cigar end and a cigarette one*.

(ii) Syntax-phonology mismatches → forms that are fore-stressed should not allow pro-one, however *´peanut oil* and *´corn oil* do in *a peanut oil and a corn one*.

(iii) Semantics-phonology mismatches → forms that are syntactic in semantic terms (i.e., they are semantically transparent) should not have fore-stress, however, *corn oil* does.

Since these mismatches occur, Giegerich (2005b) concludes by pointing out that the boundaries between lexicon and syntax regarding N+N structures are in fact fuzzy and, as a result, some sequences of nouns may fall somewhere in between.

Additionally, the results obtained from native speakers in an experiment carried out as part of the present research show inconsistencies in stress assignment (cf. Appendix IV and also Chapter 4, Section 4.4.1). Consequently, they do not provide a reliable answer to where stress falls. In some cases there seems to be no explanation at all for the different stress patterns (e.g. *´town house* vs. *country ´house*, or *´rabbit warren* vs. *rabbit ´warren*).

As regards morphological isolation, compounds are characterised by the unbreakable cohesion of their component parts, which implies that they are two lexemes acting as a single unit. The existence of morphological units of this kind implies a series of conditions when defining the concept of *word*, as proposed by Bauer (1998):

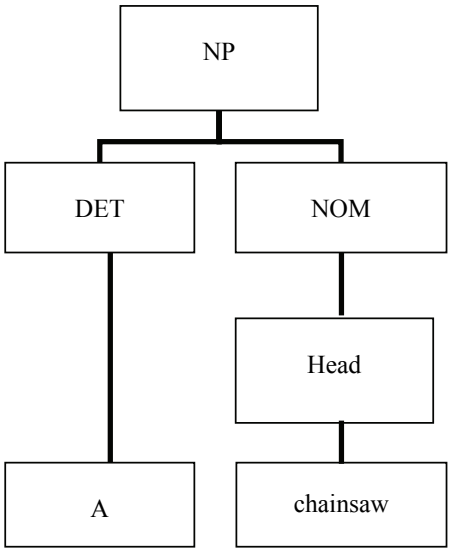
(i) Positional mobility. The word is placed within the sentence and moves as a single unit.

(ii) Internal stability. The constituents of a word have a fixed order.

(iii) Uninterruptability. No external items can be freely added to a word.

It is expected that true morphological compound words, such as some N+N structures, will exhibit these conditions. Payne & Huddleston (2002) distinguish between what they call *composite nominal* from *compound noun* (cf. Chapter 2; see also Bisetto & Scalise 1999) on the basis of two syntactic criteria, namely coordination and modification. These are two syntactic rules that cannot apply to morphological units, in accordance with the *Lexical Integrity Principle*, as proposed by Haspelmath (2002: 161): syntactic rules relating to word order and constituency cannot apply to parts of words. Coordination and modification, therefore, are useful as a means of testing whether a given N+N structure is either a composite nominal or a morphological compound. The following figure illustrates the different syntactic analyses of *chain saw* and *afternoon coffee*, assuming, provisionally, that the former is a genuine compound, and the latter a composite nominal.

COMPOUND ANALYSIS



COMPOSITE NOMINAL ANALYSIS

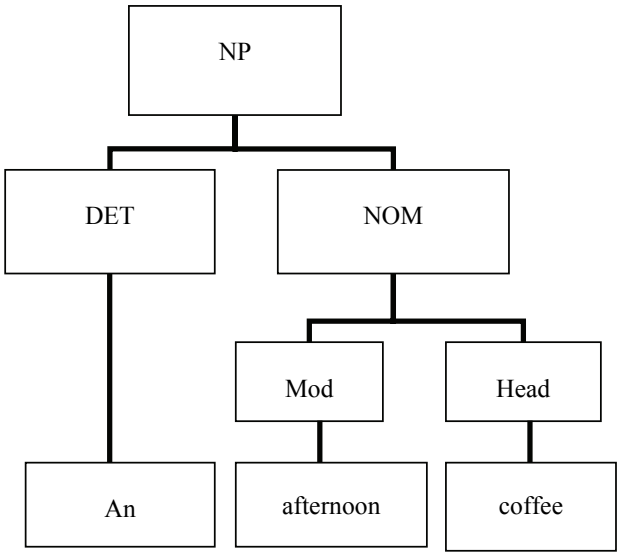


Figure V Syntactic analysis of a compound vs. a composite nominal

For these two cases at least, the coordination and modification tests confirm the different structures of these N+N sequences.

1. An afternoon coffee	2. A chain saw
1.1. Various afternoon and evening coffees	2.1. * Various chain and metal saws
1.2. Various afternoon teas and coffees	2.2. * Various chain hammers and saws
1.3. Three afternoon and two evening coffees	2.3. * Three chain and two metal saws
1.4. Three [mid afternoon] coffees	2.4. * An [iron chain] saw
1.5. Three afternoon black coffees	2.5. * A chain iron saw

Table 2 Application of modification and coordination criteria for the distinction of N+N structures

However, Bauer (1998: 73-74) notes as an exception the existence of potential modifiers which apply only to the first element of a morphological N+N sequence.

(38) **High**-energy physics (FROWN J01 L181)

Furthermore, modification within syntactic N+N structures may present additional problems in cases in which there are complements which immediately precede the head.

(39a) A linguistics student

where *linguistics* is a complement and thus no other modifying items can be inserted after it.

(39b) *A linguistics smart student

As regards coordination, Bauer (1998: 74) has criticised this test, citing example (40).

(40) * Bread and buttercups

Here there is an evident problem for coordination, because of the idiomatic reading of both elements in the compound *buttercups* ("small plant with bright yellow flowers"), "so there can be nothing in the same domain to co-ordinate with it." Thus, in the hypothetical case in which *honeycup* was a flower, the coordination *honey and buttercups* would probably be possible. The impossibility of coordinating a compound such as *buttercup*, in Bauer's view, has to do with the semantic idiomaticity of the compound, not with its nature as a compound.

Hence, the more idiomatic a construction is, the more difficult it is to coordinate it with other items. In other words, the impossibility of coordinating items such as **tooth and back ache* and the possibility of coordinating others is not necessarily a consequence of there being two different constructions "one of which allows coordination and one of which does not; rather it can be seen to be the result of general constraints on coordination and varying degrees of lexicalization." (Bauer, 1998: 75).

However, in connection with this, Payne & Huddleston (2002: 450) point out that the semantic relationship between the component parts is not enough to account for their coordination independently, which again supports coordination as a criterion to distinguish compounds from syntactic phrases. Note example (41).

(41) * The sunrise and set were amazing

Sunrise and *sunset* are semantically comparable but cannot be split by coordination, as (41) illustrates. The same is the case with examples such as *toothache* and *backache*, *teardrop* and *raindrop*, etc. Payne & Huddleston (2002), then, support coordination as a test to distinguish between syntactic and morphological constructions. Furthermore, they add that abandoning such syntactic tests would imply that all N+N structures can either be only compounds or only syntactic phrases, which itself would lead to new problems. For example, if we consider that all N+N structures are syntactic objects, then there is no possible explanation for cases such as *sunrise* and *sunset*. Also, there would be a gap in the rules for forming compound nouns, in the sense that if there are so many compounds formed from adjectives (e.g. *bittersweet*, *dark-blue*) and verbs (e.g. *tape-record*, *blow-dry*) why shouldn't there be a compound formation system based on nouns? On the other hand, if all N+N sequences are considered to be

compounds, there seems to be a weakening of the boundaries between lexicon and syntax, since it would be difficult to explain why morphological units allow coordinations of Adjective + Noun (e.g. *educational and integration projects*), or elements with prepositional phrase complements (e.g. *a Ministry of Defence official*), whose appearance within a morphological item would be very difficult to explain.

Payne & Huddleston (2002) also refer to what they call *non-syntactic criteria*, such as orthography, meaning and productivity. As regards spelling, N+N sequences may have three syntactic realisations, namely as one orthographic word (e.g. *lifestyle* FROWN G01 L164), hyphenated (e.g. *blood-stain* FROWN G04 L74) or as two orthographic words (e.g. *radio console* FROWN G01 L11). The use of hyphenation, however, is not always consistent in English. In fact, there are examples of variant spellings in the corpora.

(42a) air raid (FLOB G06 L28)

(42b) air-raid (FLOB G06 L196)

As regards semantics, Faiβ (1981: 148) considered it to be the most valuable criterion to define the status of compounds. In this respect, there exist differences in the degrees of specialisation that an N+N sequence may acquire. Thus, in the case of clear syntactic N+N structures, their meaning is the result of the sum of the meanings of their component parts, that is, their meaning is characterised by its compositionality (e.g. *drug addiction* means "an addiction to drugs"). However, for morphological N+N sequences, their meaning cannot be inferred directly from the meanings of each of the constituents, since they have acquired a semantic specialisation (e.g. *streetcar* does not mean "a car in the street" but "a wheeled vehicle which runs on rails and is propelled by electricity"). In general, it may be claimed that

compounds have lost the transparency in meaning that is characteristic of syntactic phrases. This semantic change can be due either to a loss or an addition of meaning (cf. Portero, 2004: 73), in that an extra-feature of meaning can be either added to or excluded from each component part, entailing that the meaning of a given morphological N+N sequence will be unpredictable.

(43a) A manuscript description (FLOB G50 L40) → "the description of a manuscript"

vs.

(43b) A house boy (FLOB G53 L77) → "a man or boy who cleans and does other jobs in someone else's house"

Example (43b) has specialised its meaning by adding special features related to the activity developed by a man or a boy in a house.

In spite of this, it is often possible to interpret the constituent elements of a more or less semantically lexicalised N+N sequence separately (cf. Payne & Huddleston, 2002: 450). Thus, for example, *handbag* still retains the meaning of one of its lexemes, i.e., *bag*, and both *hand* and *bag* can be analysed separately as independent constituents. Furthermore, semantic specialisation can be found in syntactic phrases too (e.g. *desk job*); conversely, compounds may have a transparent meaning (e.g. *toothache*). In view of this, Stockwell & Minkova (2002: 13) make a distinction between syntactic and lexical compounds, based on the transparency of meaning of the constituents. While syntactic compounds are not listed in

dictionaries (e.g. *shoemaker*), because their meaning can be directly inferred from the individual meanings of their constituent bases, lexical compounds are (e.g. *icebox*). This distinction is obviously problematic: the fact that dictionaries list some compounds does not imply that all of them are semantically opaque; many are listed simply because they are widely used or are familiar to speakers, yet are semantically transparent. Moreover, it is not unconceivable that N+N structures are included in dictionaries as a means of achieving a greater number of entries, with the aim of making the dictionary *comprehensive*. Furthermore, Di Sciullo & Williams (1988) argue that *listedness* is not a property of words *per se*. There are phrases, such as idioms, which actually show semantic specialisation. In the same way, Booij (2007: 188) points out that semantic idiosyncrasy is not valid as a criterion for the definition of compounds because "[T]he fact that 'yellow fever' denotes a specific disease is a semantic idiosyncrasy that shows that this morpheme combination must be lexically stored. It is certainly a **lexical unit**, but not necessarily a word in the morphological sense" (emphasis added).

As regards productivity, the third non-syntactic criterion proposed by Payne & Huddleston (2002), they also point to its gradient nature, once again implying that this is not a valid criterion for a binary distinction between compounds and phrases.

In view of the difficulties outlined here, Payne & Huddleston (2002: 450) opt for giving preference to the criteria of coordination and modification in cases of divergent results. Their response to critiques such as Bauer's (1998) is that "(…) the existence of borderline cases does not provide a reason for abandoning a distinction that can be recognised in a great range of clear cases."

In sum, the traditional criteria for the identification of morphological items and their discrimination from syntactic structures do not yield consistent results. Empirical work has

also shown that there are exceptions to all criteria (i.e., stress, morphological isolation, orthography, semantics, listedness, and productivity). The only solution is to assume that the distinction between morphological compounds and free syntactic phrases is not binary but gradient. If this is a valid assumption, then we would be able to explain why some N+N structures satisfy some criteria but not others. This question is examined in detail in the next section.

3.4.2 The institutionalisation process: idiomatisation and lexicalisation

In view of the indeterminacy of the boundary between lexical items and syntactic structures, we may resort to concepts such as institutionalisation and lexicalisation, the use of which raises a number of issues relating to compounding. In what follows, we discuss compounding and how some N+N structures, which were formerly part of a syntactic construction, may attain a new status as morphological items.

3.4.2.1 Compounding and compounds

Though I have touched upon issues related to compounding several times in the previous sections, a more detailed characterisation of compounding seems in order here, prior to the discussion of idiomatisation and lexicalisation processes.

Compounding implies the formation of a new lexical unit out of two or more lexemes, which as Olsen (2000b: 898) points out, has the potential to enter the lexicon as a stable morphological unit. In fact, as noted in Bauer (1978), compounding is considered by some as the most productive source of new words in modern languages. This is especially so in nominal morphology (cf. Lehmann & Moravcsik, 2000: 749), where it has become a very productive pattern of word formation. Indeed, many N+N structures are compounds (e.g. *butterfly*).

In compounds which are made up of two lexemes, the relation between the constituents is quite similar to that between a stem and its affix in a derivational process. The first constituent generally designates the reference of the second compound member, which functions as the head[14] of the compound. Plag's *Feature Percolation Principle* (Plag, 2003: 136), which describes "the inheritance of features from the head" (see also Haspelmath 2002), captures the idea that the morphosyntactic features belonging to the head of the compound are shared by both the head and the compound itself, and that those features possessed by the first lexeme are simply left in the morphological domain, that is, they just belong to that first constituent (e.g. *housemaids* is a plural noun because its head *maids* is plural). In order to see how morphosyntactic properties can be shared by both the head and the compound (i.e., [[*house*] [*maid-s*]] and not [[*house*] [*maid*]*s*]) we might look at the case of compounds in Spanish, where the head is the first or left-handed element.

(44a) [[año] [luz]] → [[año-s] [luz]]

The plural marking *–s* is not placed outside the compound but within it. Returning to English, we note that in the case of irregular plurals, the plural marking is also placed within the compound attached to the second element.

(44b) pocket mice vs. *pocket mouses

However, as far as irregular plurals are concerned, this is not always the case. Examples exist of second elements in compounds which originally had an irregular plural but show a regular

[14] Cf. Williams (1981: 248) for the notion of head within morphology and the *Right-Hand Head Rule* (RHR), whereby the head of a morphological complex word is the right-hand member.

plural when combined with the other elements to form the compound (e.g. *walkmans* vs. **walkmen*). In principle, two different reasons may be adduced to explain why irregular forms are rejected (cf. Pinker 1994):

(i) Because any new form added to the language must be a regular form.

(ii) Because when one word acquires a new meaning (which implies that this meaning is not literal), that meaning requires a regular form.

Pinker (1994: 142) points out the inconsistency of these reasons. He explains that in compounds such as *workman*/*workmen*, the compound keeps its irregular plural form because the complex word is interpreted in terms of the meaning of its component parts, that is, a *workman* is a singular noun because *man*, its head, is a singular noun and it refers to a kind of man. For that same reason, the complex structure *workmen* keeps the irregular form of *men*, to which the whole compound is referring. Exactly the contrary is the case for *walkmans*, a compound word which does not refer to a man of any kind but rather to a small portable cassette player with headphones.

On the other hand, head and compound also share word class as a common morphosyntactic feature. Thus, *greenhouse* is a noun because the head of the compound is also a noun (in spite of the fact that the first element *green* is an adjective). In Haspelmath's (2002: 87) words, "[T]he compound is a hyponym of its second member." Hence, the compound *lipstick* means a kind of *stick*, not a kind of *lip*. Therefore, as has already been pointed out, there is some sort of parallel syntactic relationship between the elements of a compound by which the first component modifies the second one or head of the compound, which partly explains the indeterminacies we have dealt with in the previous section. This is

related to what Marchand (1969: 11) called *expansions*, those combinations of words like *steamboat* or *colourblind*, which are simple morphological extensions of the words *boat* and *blind*. An expansion, then, is defined as a combination AB, where B is a word that can be analysed on the basis of the formula AB = B. This means that AB belongs to the same word class as B.

However, the relationships between the elements of compounds are of many sorts and most are delimited by the semantic ties established between their members. Indeed, Haspelmath (2002: 87) points out that there are almost no restrictions on the kinds of semantic relationships between their component parts. Thus, consider examples (45a) and (45b).

(45a) Flower seller → someone who sells flowers

(45b) Street seller → someone who sells something in the street, and not someone who sells streets

Consequently, it is our knowledge of the world that makes us determine what a compound may mean. We are then able to establish semantic relationships based on previous knowledge and contextual information. Nonetheless, meaning in compounds is sometimes quite deeply encrypted, and arriving at a meaning may require the use of a dictionary (e.g. *greenhouse*). From the perspective of an early approach such as Transformational Generative Grammar, compounds were understood as deriving from complex syntactic structures (cf. Lees 1960; Levi 1978, also explained in Section 3.2). Thus, if we have the sentence *a box used for letters*, this is supposed to have evolved into the syntactic construction formed by two nouns *letter box*, and from it to the compound noun *letterbox*. However, this view is not without problems.

As an illustration, one may not know how a given compound can be classified; in the case of a structure such as *bus shelter*, we may think this is a shelter for people waiting for a bus or a shelter for buses. Likewise, there are compounds which are so opaque in their meaning that building an *underlying sentence* from them is almost impossible. Similarly, meanings in compounds do not always correspond to a given pattern. Thus, note examples (46a) and (46b).

(46a) bookshop → a shop where books are sold

(46b) workshop → a session of group study or a manufacturing workplace

Here both structures have evolved using the same head noun *shop*, yet the resulting complex constructions differ in terms of their meanings, the first having to do with a place for selling things, and second having no such meaning. Clearly, there may be many meanings in potential underlying sentences, and thus it must be the case that no transformation of these meanings has taken place. However, as Haspelmath (2002: 90) points out, there are often close parallels between compounds and syntactic phrases. For example, in the case of *sunrise*, we may find a syntactic counterpart in *the sun rises*. Such ties need not be transformational, if by transformational is understood a fully determinate derivation.

Additionally, several authors have attempted to classify compounds according to semantic criteria. Warren (1978: 47) distinguishes among six different types of semantic relations in compounds formed by an A and a B element[15]. On the other hand, Carstairs-McCarthy (1992: 109) makes a distinction between *primary* or *root* compounds and

[15] For an explanation see Section 3.2.

secondary or *synthetic* compounds on the basis of different semantic/thematic relationships between their constituent parts. In *primary* compounds, the second element has no verb stem and there is no straightforward relationship between the two elements (e.g. *butterfly net*); as a result, these compounds are characterised by their semantic indeterminacy. In the case of *synthetic* compounds, the second element contains a verb stem and the first element has a semantic role in relation to that second component, as if they were part of a syntactic phrase (e.g. *meat-eater*). In principle, all secondary compounds display a structure based on a theme + deverbal noun in *–er*. However, the ambiguous interpretation of certain combinations of this sort can lead to their consideration as both root and synthetic compounds. This is what happens in sequences like *tree-eater*:

(47a) as a root compound → someone who eats while seated under a tree
(47b) as a synthetic compound→ someone who eats trees

This is so because *eater* does not require a compulsory argument such as *tree*. As a result, *tree-eater* would preferably be considered to be a root compound. This implies that secondary compounds not only entail a semantic relationship between their elements but also a thematic relationship. In the case of *tree-devourer*, this would be a secondary compound, since the element *devourer* obligatorily requires an argument *tree* (*someone devours trees* vs. **someone devours*).

However, the most widespread and accepted classification is that which distinguishes among *endocentric*, *exocentric*, *appositional* and *copulative* compounds. *Endocentric* compounds are those which have a head and can be reduced to it (e.g. *tablecloth* is a kind of *cloth*). *Exocentric* compounds are those which cannot be reduced to any of their components

and which designate other entities different from those expressed by their constituent parts (e.g. *pickpocket* is not a kind of *pocket* but somebody who steals money or other goods). As can be appreciated, these compounds are generally based on some sort of metaphoric meaning[16]. *Appositional* compounds are those whose semantic *meaning* is a hyponym of both their component parts (e.g. *maidservant* is a type of *maid* and a type of *servant*). Finally, *copulative* compounds are those whose component parts refer to two separate entities (e.g. *Alsace-Lorraine*).

However, semantics has not been the only source of classification of compounds. They have been also classified according to the syntactic relationships established between their component parts (cf. Levi 1978[17]), based on the belief that compounds show a relationship between their members which is analogous to those pertaining between the constituents of a syntactic construction; that is, in Portero's (2004: 104) words, "(…) one member is understood in relation to another member." As an illustration, Quirk *et al.* (1985: 1570-1576) make a syntactic classification of noun compounds by distinguishing "subsets on the basis of a grammatical analysis of the elements involved in a canonical example, together with an informal indication of the relationship between them in terms of a syntactic paraphrase." Thus, they make a distinction between subject and verb, verb and object, verb and adverbial, and verbless (subject and object and subject and complement) noun compounds:

(i) Subject and verb compounds can be of three subtypes:

   a. subject + deverbal noun: *sunrise* ("the sun rises")

   b. verb + subject: *crybaby* ("The baby cries")

   c. verbal noun in *–ing* + subject: *dancing girl* ("the girl dances")

[16] For further research on meaning in metaphoric N+N compounds, see Benczes (2006).
[17] Levi's (1978) classification of *Recoverably Deletable Predicates* is explained in Section 3.2.

(ii) verb and object compounds are divided into five subtypes:

a. object + deverbal noun: *blood test* (“X tests blood”)

b. object + verbal noun in *–ing*: *fault finding* (“X finds faults”)

c. object + agential noun in *–er*: *tax payer* (“X pays taxes”)

d. verb + object: *push-button* (“X pushes the button”)

e. verbal noun in –ing + object : *drinking-water* (“X drinks water”)

(iii) verb and adverbial compounds:

a. verbal noun in *–ing* + adverbial:

i. place: *drinking cup* (“drink out of a cup”)

ii. instrumental: *baking powder* (“bake with powder”)

b. adverbial + verbal noun in *–ing*:

i. place: *horse-riding* (“ride on a horse”)

ii. time: *sleepwalking* (“walk in one’s sleep”)

iii. instrumental: *handwriting* (“write by hand”)

iv. other: *shadow-boxing* (“box against a shadow”)

c. adverbial + agential noun in *–er*:

i. place: *factory-worker* (“work in a factory”)

ii. time: *daydreamer* (“dream during the day”)

d. adverbial + deverbal noun:

i. place: *moon walk* (“walk on the moon”)

ii. time: *night flight* (“fly during the night”)

iii. instrumental: *gunfight* (“fight with a gun”)

iv. other: *telephone call* (“message by the telephone”)

e. verb + adverbial:

i. place: *dance hall* (“dance in a hall”)

ii. instrumental: *plaything* (“play with a thing”)

(iv) verbless compounds: subject and object compounds:

a. a noun powers/operates another noun: *windmill* (“the wind powers the mill”)

b. second noun produces/yields first noun: *toy factory* (“the factory produces toys”)

c. first noun produces/yields second noun: *bloodstain* (“blood produces stains”)

d. a noun has another noun: *piano keys* (“the piano has some keys”)

e. second noun controls/works in connection with first noun: *fireman* (“a man who fights against fire”)

(v) verbless compounds: subject and complement compounds:

a. second noun is first noun: *girlfriend* (“the friend is a girl”)

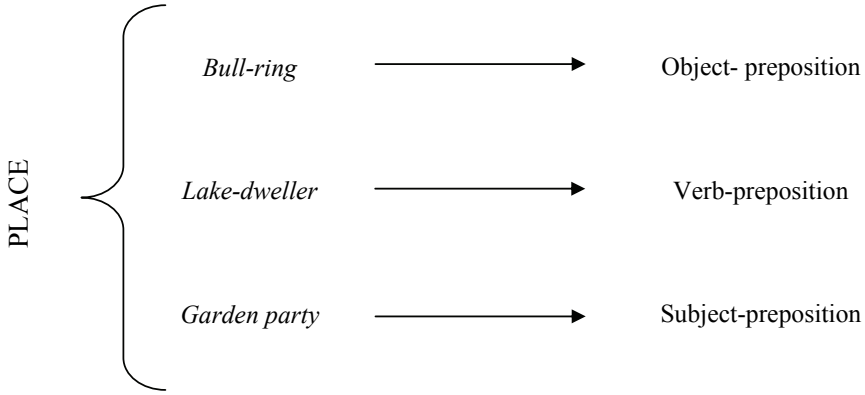
b. second noun is like first noun: *frogman* (“the man is like a frog”)

c. second noun consists of first noun: *snow flake* (“a flake of snow”)

d. second noun is for first noun: *ashtray* (“the tray is for ash”)

Likewise, Lees (1960) establishes a classification based on the syntactic relationship between the component parts of a compound once this compound is paraphrased. Adams (1973: 61) has noted the disadvantages of this system, claiming that there is a placing together of compounds “(…) which one intuitively feels are rather different from one another (…). Another [disadvantage] is that it separates compounds which we feel are similar in an important respect.” Thus, for the latter case, consider (48).

(48)



Each of the N+N compounds is classified in a different group (i.e., object-preposition, verb-preposition, and subject-preposition). However, the three compounds contain a locative element indicating place. In spite of this, Adams (1973: 64-89) establishes a syntactic classification of noun compounds which at times appears quite similar to semantic criteria: subject-verb, verb-object, appositional, associative, instrumental, locative, resemblance, composition/form/contents, adjective-noun, names and other. The last group, *other*, is supposed to comprise all the samples of N+N compounds which cannot be given a concrete status within the syntactic classification. For that reason, this classification seems rather incomprehensive and limited.

Bauer (1983) uses a system based on the form class of each component part. This system establishes the semantic relationships among the elements of each compound. However, as Bauer (1983: 203) himself points out, any method of classification is susceptible of being controversial, implying that his own is not free of disadvantages. He goes on to note

that "because of the amount of conversion in English, it is not always clear what form class a particular element belongs to", as in examples (49a) and (49b).

(49a) waterfall (N+N) → a fall of water

(49b) waterfall (N+V) → the water falls

Furthermore, as previously noted, compounding is actually a recursive phenomenon, since new lexemes can be added to the former ones to form larger morphological units. As a consequence, any compound can be the immediate constituent of a further compound. Portero (2004: 104) illustrates this idea with example (50).

(50) fruit-juice carton

Here, the head noun *carton* is accompanied by the compound *fruit-juice*, forming as a result a larger construction *fruit-juice carton*.

3.4.2.2 The process of acquisition of new lexicon: institutionalisation, idiomatisation and lexicalisation

The question now is: where do N+N structures stand with respect to the morphological phenomenon of compounding? In order to answer this question, reference to the concept of lexicalisation[18] is needed. A lexical item is a unit which belongs to the lexicon and, as such, it is said to be lexicalised. Speakers use N+N structures on the spur of the moment to fill gaps for which there is apparently no morphological construction. The resulting unit is a nonce formation (cf. Portero, 2004: 71). Then, if that construction is accepted by a community of

[18] Other related concepts are *routinisation* (cf. Haiman 1994) and *petrification* (cf. Leech 1974).

speakers and is used again for future applications, we may consider it to be **institutionalised**. Institutionalisation is defined as "(…) the process in the history of a lexeme when it comes to be accepted by other speakers as a known lexical item" (ibid.). Institutionalisation thus belongs to an earlier stage in the process towards lexicalisation[19]. As Bauer (1978: 77) points out, the elements of the complex institutionalised construction are no longer consciously analysed by the speech community and its denotation becomes more specific. The institutionalised construction is therefore accepted by the speech community as a normal word. Bauer (1983: 50) also indicates that both institutionalisation and lexicalisation are part of a process in which a given complex structure becomes **established**. The reasons for this happening are complex, and some words become institutionalised, while others do not. Among the factors leading to institutionalisation we can mention:

(i) The status of the first user. It is generally agreed that language users belonging to dominant social groups, especially the upper classes, are more influential than other members of the society as regards expanding, by means of the new coining or the continuous use of a word or expression.

(ii) The intelligibility of the complex word: speakers prefer expressions whose meaning can be easily discerned.

(iii) The prestige of the complex word, related to its context of use, its users and the extralinguistic reality to which it refers.

(iv) The ease of the complex word to achieve a specific effect or to save space (as in the case of journalism).

[19] Note that, against the position adopted in this dissertation, some scholars argue that institutionalisation is the same phenomenon as lexicalisation.

(v) The frequency of the designated object, that is, events, things, animate beings and the like to which we make continuous reference.

Once a given structure is institutionalised, it may stay as it is or it may undergo further lexicalisation, as a result of which it becomes idiosyncratic. This implies that its behaviour is now unpredictable. There are two kinds of idiosyncratic properties which may obscure the complex structure: formal (phonological or morphological) and semantic. These new formal and semantic properties can no longer be explained in terms of the constituent parts of the N+N sequence or its word-formation pattern, since this new lexicalised structure is no longer productive from the point of view of word formation (Sauer, 2000: 1626). Lexicalisation can also affect syntactic structures but, as Bauer (2000: 838) points out, those are merely exceptions to the rule. In fact, the way in which lexicalisation acts on both kinds of structures is different, since it affects them to different degrees: whereas phrases may be affected by semantic idiosyncrasies (e.g. *How do you do?*), words may be affected by semantic but also formal idiosyncrasies, for example, in the semantic and phonological reduction of the word *gospel* (from OE *god spel* meaning "good news" to PDE *gospel* with a more specialised meaning "a doctrine that is considered to be of great importance"). Depending on these different idiosyncratic properties, lexicalisation can be of different types (cf. Bauer 1983; Sauer 2000):

(i) Graphemic. Reflects phonological changes:

e.g. *tuppence* (/'tΛpns/) for *twopences*

(ii) Phonological. There are the following subtypes:

(ii.i) Segmental. The elements of a complex word develop in a phonetically different way in independent use:

e.g. *woman* < OE *wif* + *man* (shortening of first element, loss of stress on the second element and assimilation)

(ii.ii) Suprasegmental (prosodic). One element in a compound undergoes a change:

e.g. in *chairman*, the second element loses its secondary stress and is also reduced phonetically

(iii) Morphological. Further subdivided into:

(iii.i) Linking elements:

e.g. PDE *nightingale* < OE *nihtegale*

(iii.ii) Unproductive word-formation patterns or elements:

e.g. *pickpocket*

(iii.iii) Blocked (unique) morphemes. Those which occur within one compound but no longer occur as single words:

e.g. *Tues* in *Tuesday*

(iii.iv) Obscured compounds:

e.g. *nostril* < OE *nos-pyrel*

(iii.v) Partly obscured compounds. This is only in cases when speakers notice the semantic relation of the element and the single word from which it was taken:

e.g. *cup* in *cupboard*

(iv) Semantic. This entails a change of meaning by the addition or loss of semantic features or by the mixture of both:

(iv.i) Addition (meaning restriction):

e.g. ME *hand-while* "time to turn one's hand > "very short time"

(iv.ii) Loss (meaning expansion):

e.g. *arrive*. Originally it meant "to land at the shore", nowadays it means "come to a place"

(iv.iii) Mixture:

e.g. *holiday* lost its religious character but the meaning of "free from work or school" was added

The way towards lexicalisation is in itself a diachronic, gradual process. In fact, Sauer (2000: 1632) distinguishes among different degrees of lexicalisation:

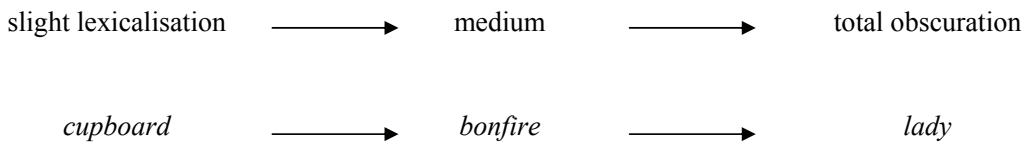


Figure VI Degrees of lexicalisation according to Sauer (2000)

Thus, from slight lexicalisation, there is a medium stage in the way towards total obscuration or **demotivation**, which implies a loss of semantic compositionality (cf. Brinton & Closs-Traugott, 2005: 32); thus, one or both constituents have lost their original meaning. In principle, words can be phonetically, morphologically or semantically motivated (e.g. onomatopoeic words such as *bang*). However, they may undergo a loss of motivation owing to changes that are intralinguistic or extralinguistic (within the cultural background). That loss may affect one or both constituents (cf. Sauer, 2000: 1633 with *blackboard* and *butterfly*).

The process of lexicalisation affecting N+N structures is a central topic of the sections devoted to the empirical research in this dissertation, and as such will be examined in detail in the following chapter.

3.4.3 Concluding remarks. Can N+N structures be considered as a method of word formation?

Once lexicalisation has taken place, the resulting complex structure becomes widely accepted by the community of speakers and enters the lexicon. Furthermore, there is no further need to think about its constituent elements in order to understand the meaning, since this new word is now stored by speakers as a single unit (both from a semantic and from a morphological point of view). As we have seen in the previous section, lexicalisation can affect complex words in such a way that speakers may not recognise the single parts of which it was once made (owing, for example, to phonological and graphemic reduction, such as in *gospel*). Given all this, the answer to the question regarding the status of N+N structures is clearly that, as with any other kind of coinage, they can enter a gradual process of institutionalisation and lexicalisation and consequently become lexical items, or they may remain as syntactic structures. However, are there N+N structures which are lexicalised from the very beginning? Or are they all syntactic phrases at first? In line with what has been discussed thus far, it makes sense to believe that the process of compounding is a phenomenon which all structures may go through. That is, in order to be a word, we need first of all to assemble a certain structure. As a result, we may say that all N+N structures must have been syntactic constructions once, some of which undergo the process of compounding more quickly, or do so in a more unconscious way. Among them, we may find those N+N structures which are analogically created from other existing constructions (e.g. *book shop* may yield forms such as *pizza shop*, *barber shop* and so on). The fact that speakers do not realize the process is in

operation does not imply, then, that it is not actually taking place. Furthermore, language is for most people a way of social interaction, and it is seldom the case that normal native speakers of a language (that is, non-linguists) are actively conscious of the ways in which their language functions. As a result, language users may not notice how certain syntactic constructions evolve into morphology. Thus, all N+N structures rise as coinages and the fact that some of them enter a process of lexicalisation at a faster or slower pace depends on factors such as analogy, frequency of use and the existence of lexical gaps. That lexicalisation is taking place may be due to the need for new meanings when new extralinguistic references are created, which implies that a given structure needs to acquire a semantic specialisation.

As for the criteria that can be used to distinguish between syntactic and lexical items, they do not give way to complete antagonists, that is, this is not a binominal distinction between one status and the other, but rather a question of gradience, in which some structures that are more or less lexicalised or more or less institutionalised than others will be found. This assumption is going to be empirically tested in the following chapter.

3.5 Nominal modifiers versus other kinds of modification within the noun phrase (genitive phrases, adjectives, prepositional phrases, and relative clauses)

As already noted, it is well-known that modification of nouns by nouns is not the only form of specifying the reference of a head noun. There are other items which, more or less prototypically, can modify the head noun of an NP. These are mainly adjectives and genitive phrases, which occur in premodifying position, and also prepositional phrases and relative clauses, which occur in postmodifying position.

One of the questions that the use of nouns as modifiers may raise is: why do we use them instead of other devices, such as prepositional phrases or adjectives, when, as is often the case, they are semantically analogous? In what follows, a survey of these other kinds of

modification is offered. Also, reasons for the preference of one option over another will also be briefly considered.

3.5.1 The premodifying position

Modification in noun phrase structure, whether by adjectives or genitive phrases, has been discussed extensively in the literature. Grammars such as those of Huddleston & Pullum (2002) and Quirk *et al.* (1985) contain useful surveys of the functions and uses of both kinds of premodifying items.

As regards the contrasts between them and nouns, the work by Rosenbach (2007) on the variation between determiner genitives and noun modifiers in English hypothesises that there is fuzziness between the functions of genitive constructions and N+N combinations. She illustrates this fuzziness with examples (51a) and (51b) (2007: 143), which do not appear to differ semantically.

(51a) Bush's Administration

(51b) The Bush Administration

In principle, as noted in Rosenbach (2007), nominal modifiers typically function as classifiers, which means that they narrow the denotational class of the head noun to a subset denoted by the head (e.g. *television screen* is a kind of screen). However, there are exceptions to this rule, and some have a determiner function (e.g. *the Major plan*, *the Arthur property*). Thus, these nominal modifiers do not fulfil a classifying role but help to narrow the referent of the noun phrase, and have an identifying function, just like determiner genitives (e.g. in *the Major plan*, *Major* specifies whose plan it is → *the Major's*, but does not denote the class of plan it is). Proper nouns represent the prototypical kind of noun modifiers with a determiner

function, since, in Rosenbach's words, they are the highest in animacy and definiteness (thus most easily compatible with the determiner function). However, in the case of *the Bush Administration*, though this noun modifier could be considered to have a determiner function, it also seems to have some sort of classifying function: *the Bush Administration* is a specific kind of administration.

Rosenbach also points out that animacy affects the choice of one or the other structure, and that genitive modifiers are prone to denote animate beings. On the other hand, noun modifiers tend to be inanimate, such as locative (e.g. *London airport*), temporal (e.g. *tomorrow morning*) or common nouns (e.g. *television screen*). In her (corpus-based) study, Rosenbach arrives at the conclusion that there is gradience between genitives and noun modifiers from a semantic perspective, whose use varies according to three semantic features, namely, restrictiveness, animacy and referentiality of the dependent elements:

	determiner genitive (*Laura's brother*)	noun modifier (*television screen*)
restrictiveness	+	+
animacy	+	-
referentiality	+	-

Table 3 Gradience between *s*-genitives and noun modifiers (based on Rosenbach 2007)

Another study on this topic is Taylor (2000). He argues that there is a continuum between nouns and genitive modifiers based on the animacy and the referentiality of the N+N construction. He considers that what he calls possessive compounds (e.g. *Achilles' heel*) are part of the category of nominal compounds (e.g. *dog food*), the only difference between them being the presence or absence of the possessive morpheme. These possessive compounds differ from prenominal possessives (e.g. *John's aunt*) in that they entail neither topicality, nor prior mention or knowledge about the premodifying item. Thus, whereas for *Achilles' heel* there is no need to identify the referent of the possessor (consequently it would be inappropriate to ask *whose heel is that?*), in the case of *John's aunt* the possessor nominal serves as a reference point for the identification of the referent of the possessed (consequently, we must first of all identify who John is in order to know to which aunt the speaker refers, and thus it would be appropriate to ask *whose aunt are you talking about?*). Thus, expressions such as *Achilles' heel* resemble compounds rather than genitives proper. Furthermore, on some occasions they behave like nouns rather than noun phrases. The construction [*the* [*debilitating*] [*Parkinson's disease*]], for example, would be impossible in the case of a prenominal genitive such as **the loquacious* [*John's aunt*].

Given the inclusion of possessive compounds within the category of nominal compounds, the question then is why there is such variability in their use. The two factors mentioned above, namely animacy and referentiality, play an important role. As far as animacy is concerned, the occurrence of the possessive marker correlates with the animacy of the modifier. Thus, the possessive marker is obligatory with human nouns (e.g. *woman's magazine*), but when the modifier is inanimate or abstract, the possessive is generally impossible (e.g. *letter box*). However, there are also exceptions to this (e.g. *baby food*, *ship's engine*) and Taylor (2000: 303) refers to Quirk *et al.*'s (1985: 314) *gender hierarchy*, which

concerns the possibility of replacing a noun by *he* or *she* instead of by *it*. The higher an item is in the hierarchy, the more likely it is to take the possessive morpheme. Hence, in the case of *baby food*, the modifying noun, in spite of being human, can sometimes be referred to as *it*. Similarly, in the case of *ship's engine*, the modifying noun *ship*, in spite of being an inanimate thing, can be referred to as *she*. However, with non-human animated nouns there is considerable variation (e.g. *lamb's wool* vs. *horse head*), and Taylor even points out that sometimes the two possibilities coexist (e.g. *duck egg* vs. *duck's egg*).

As for referentiality, this feature is also mentioned by Rosenbach (2007). Referentiality is defined by Taylor (2000: 308) as the extent to which the modifier noun invokes the conception of an instance rather than a type. As an illustration, consider (52).

(52) driver's seat vs. passenger seat

Whereas both modifiers in (52) refer to animate human beings, only *driver's seat* is a possessive compound. This is related to referentiality, since in the first instance, the seat is meant for a unique individual, as each car has a single seat for the driver; however, there are a number of passengers, and the passenger is a role that can be filled by any human being. Thus, *driver's seat* (which is an instance of a seat) is more referential than *passenger seat* (which is a type of seat).

As a result, Taylor (2000: 311) considers that "(…) the move to a non-referential modifying noun, and the associated loss of the possessive marker, reflects increasing conventionalization of an expression." Thus, he proposes a "(…) continuum of conventionalisation from a true prenominal possessive with a definite possessor, through a

prenominal possessive with an indefinite possessor, to a possessive compound, and finally to a non-possessive compound." As an illustration of this, note example (53).

(53) [the driver]'s licence > [a driver]'s licence > a [driver's licence] > a [driver licence]

He also proposes a final stage of conventionalisation, with the omission of the spacing and the retention of the *s*, as in *menswear*. In brief, what Taylor (2000) proposes is an explanation of the variability of genitive and noun modifiers based on the conception of a continuum of semantic conventionalisation which may even lead to a graphemic conventionalisation.

Regarding the contrast between adjectival and nominal premodifiers, it has been shown empirically that nouns as modifiers are different in their use from modifying adjectives. These differences have been studied by Warren (1993). Whereas nouns as modifiers are restrictive, in that they combine with their heads to form referring units (e.g. *gold fish*), adjectives as modifiers are non-restrictive, since they do not affect the meaning of their heads but contribute additional information (e.g. *golden fish*). This distinction would serve to explain the different uses of nouns and adjectives as modifiers.

However, not all noun modifiers behave in the same way and sometimes premodifying nouns lack a corresponding adjective. As an illustration, Giegerich (2004: 7) considers that in N+N combinations such as *steel bridge* N1 plays the same role as a descriptive adjective. In the event that such an adjective existed, it would have to be denominal, that is, **steelen*, like *golden*. However, this process of formation of denominal adjectives with *–en* is no longer productive, and very few examples are now found in English. In addition, most of these few

examples have a metaphorical meaning which differs from the meaning of the noun as a modifier. This is the case of *golden wedding*, which has the metaphorical meaning of "the fiftieth wedding anniversary", and not the same meaning as *gold watch* ("a watch made of gold"). These differences also prove that expressions such as *steel bridge* are syntactic phrases and not morphological constructions. In other words, *steel bridge* has a syntactic nature because, in the event that it were a lexical unit, there would be a strange gap in the syntax, that is, the supposedly morphological *steel bridge* would not have a counterpart in the syntax such as **steelen bridge*, with a modifying adjective.

3.5.2 The postmodifying position

As noted, Levi (1978) views N+N structures as deriving from underlying sentences which depend on a set of nine different predicates (cf. Section 3.2). In most cases, nominal combinations can indeed be replaced by underlying sentences with a relative clause.

(54a) a stone wall

(54b) a wall which is made of stone

However, this combination can also be replaced by a prepositional phrase:

(54c) a wall of stone

What this shows, apart from the fact that Levi's proposed system is inconsistent (cf. Section 3.4.2.1), is that there seems to be variation between nouns as modifiers and postmodifiers such as relative clauses and prepositional phrases, since the three of them can be used interchangeably in many cases. The main questions which arise from this are: are there any

differences in meaning? If this is not so, why do we choose one pattern instead of the others? Are there factors in operation other than those of a semantic nature?

As far as meaning is concerned, the three constructions apparently mean the same thing. However, differences are found in the permanence of a given referent in time or in its utility as a means of communicating efficiently and economically. These are the reasons why speakers choose to use one or the other, depending on the effect they wish to achieve on their audience. Thus, in the case of *stone wall*, the referent is more permanent in time than in the case with *a wall which is made of stone*. Furthermore, the noun modifier provides the referent with a character of specificity that it does not have in the case of the prepositional phrase or relative clause postmodifiers. The fact that speakers and writers employ fewer words and thus less time in pronouncing or writing N+N combinations than noun phrases with prepositional phrase and relative clause postmodifiers is also a factor motivating the choice of N+N structures. As has already been pointed out in the case of nominal modifiers against genitive constructions, noun phrases with a noun as modifier contribute to linguistic economy. These reasons are going to be empirically tested in the following chapter.

To conclude, the choice of one or the other modifying element depends on two main factors: subtle meaning differences and pragmatic differences of permanence and specificity. Speakers are generally not consciously aware of these differences and choose among the possibilities available to create a specific construct according to their communicative goals.

3.6 Summary and concluding remarks

The present chapter has provided an overview of earlier literature on the definition, specification and function of N+N structures. It has been shown that nominal modifiers are characterised by their restrictive function, which has an effect on the order in which they appear in modifying position within the noun phrase. It has also referred to their

morphological properties, such as the lack of inflectional endings. Reference to the problem of stress variability has also been made. Several possible solutions to this problem have also been mentioned. In spite of these, the question of stress variability remains unsolved, and leads to many contrasting positions among scholars.

Empirical research has shown that N+N structures are on the rise nowadays, a development for which, provisionally, there seem to be three possible explanations:

(i) that they are compact packages of information;

(ii) that the information they provide is easily retrievable;

(iii) that interlocutors can easily predict the information conveyed by means of an N+N sequence.

An overview of the previous literature on the topic has also been offered here, especially of that published during the last three decades of the 20th century and in the present century. Three main stages were distinguished: a first stage, in which there is a clear interest in unravelling the semantic relations among the component parts of N+N structures; at this stage it is generally considered that all N+N sequences are compounds, and interest focuses on their productivity within a word formation process. In the second stage, there is increasing interest in seeing nominal sequences from the perspective of textual genre studies and sociolinguistics; their status as morphological items or syntactic devices is also a source of debate. Finally, the third stage has shown studies devoted to the question of the boundaries between syntax and morphology as well as to stress variability. Currently, scholars are aware of the fact that N+N sequences are in constant evolution, which complicates their analysis of this supposedly discrete phenomenon.

The fact that nominal sequences are simply juxtaposed items explains the difficulties that speakers may encounter when searching for the correct understanding of such combinations. Thus, the question of ambiguity in N+N structures has also been discussed in the present chapter. As noted above, ambiguity here has been studied from three different perspectives:

(i) from the point of view of syntax, since longer N+N sequences need internal bracketing for their understanding;

(ii) from the point of view of semantics, since the meaning of the resulting combination of nouns can be ambiguous;

(iii) finally, from the point of view of the categorial structure of the first elements, since the use of nouns in premodifying position can lead to the consideration that they undergo a process of conversion from nouns into adjectives.

Hence, the issue of gradience was carefully considered in the section on ambiguity, above. However, this was not the only problem related to fuzzy boundaries that N+N structures display. A question which has been a continuous matter of study is that of the status of nominal sequences as syntactic structures or morphological items. In the present chapter this problem has been related to the questions of institutionalisation and lexicalisation and to the process of compounding within word formation. Lexicalisation has been seen as a gradient process that certain N+N structures undergo, and has been considered to be a combination of semantic, orthographic, phonological and morphological changes.

Finally, this chapter has briefly reviewed the contrast of nouns as modifiers with other kinds of modification patterns within noun phrase structure. It has been shown that, on some

occasions, nouns as modifiers entail the same meaning as other modification patterns, such as relative clauses or prepositional phrases. However, there are also some differences between them, and these are of pragmatic origin (such as their compact form and their character of permanence over time). Such differences allow speakers to make choices as to which construct to use according to the objectives of each communicative situation. Also, as far as the contrast between adjectives and nouns is concerned, it has been explained that the choice between them (whenever there is one) depends most of the time on the semantic goals of the speaker.

In the following chapter of this dissertation, some of the views reviewed above, including the issue of lexicalisation, and also the relation between N+N sequences and textual genres, speech communities and modes, will be tested empirically.

4 THE CORPUS RESEARCH

This chapter will deal with the evolution and use of nominal premodifiers in Present Day English. For that purpose, several corpora of written and spoken English have been selected and analysed. I have opted for a corpus study because it represents the best way of analysing N+N sequences from different perspectives (text category, speech community, time period, and mode) as well as the best way of providing information which otherwise would not be available by means of intuition. Besides, as noted in Svartvik (1992: 8), the results deriving from a corpus study are more objective. In this respect, Biber, Conrad & Reppen (2001: 4) offer a useful summary of the benefits derived from a corpus study:

(i) It is empirical.

(ii) It is based on a collection of natural texts.

(iii) It relies on computers for the analysis.

(iv) It depends on both quantitative and qualitative methods of analysis.

Firstly, Section 4.1 presents an explanation of the main hypothesis of this dissertation from the perspective of the four different variables chosen for the study: text category, speech community, time period, and mode. Section 4.2 gives an account of the corpora used and of the methodology employed for the extraction of data. Section 4.3 then provides an overview of the data itself, taken from the corpora of written and spoken English, from the perspective of the four variables. Section 4.4 goes on to examine the process of lexicalisation. Finally, Section 4.5 is an account of the most relevant results, and sheds light on the reasons and implications for the use of N+N structures with each variable in mind. It also summarises the main findings and includes some concluding remarks.

4.1 A hypothesis around four variables

The use of N+N sequences in Present Day English has evolved significantly over the second half of the 20th century (cf. Biber & Clark 2002; Rosenbach 2005). The increased use of such sequences is not random, and explanations must be sought. This dissertation supports the idea that N+N structures are constructs which generate in the syntax to fill a gap for which there is no morphological item. In spite of their syntactic origin, some N+N structures undoubtedly contribute to the expansion of the lexicon in English by becoming morphological items in a gradual process of lexicalisation. In addition to this, other factors also play an important role in the distribution and evolution of N+N structures, and these are here discussed in relation to the four variables text category, speech community, time period, and mode.

The emergence of a globalised information society in the last half of the 20th century has a linguistic correlate in the increase of nominal premodifiers. The use of N+N sequences in genres such as journalistic language is an example of this increase (cf. Jucker 1992; also Chapter 3 Section 3.2), from which other genres may be influenced. Differences in the use of N+N sequences depending on speech communities, such as British and American English, may also be found; and, given that American English is considered to be an innovative speech community (cf. Hundt 1997), it would be expected that a higher proportion of newly coined N+N structures will flow from American than British English. Structures here would include those uttered for a specific purpose at a given moment but not yet present in the language as institutionalised or lexicalised constructs. Likewise, differences are expected within the time span under study. Given that N+N structures are on the rise from the 1960s, it is expected that this increase continues until the end of the 20th century. Finally, there are no indications in the literature as to how we may predict the use of N+N structures in spoken language. Spoken language is grammatically simpler and uses fewer nouns than its written counterpart (cf.

Halliday 1989), and for this reason we may predict that the number of N+N sequences found in spoken language is lower.

The corpora of written English chosen for the analysis (presented in depth in Section 4.2) allow us to work from three different perspectives: text category, speech community and time period. Furthermore, the corpora of spoken English (cf. also Section 4.2) add a new dimension to the research, that of spoken language from the 1990s and from two different speech communities (British vs. American English). Findings from the spoken data will be compared to corpora of written English from the same period (FROWN and FLOB). The corpus analysis will test the assumptions referred to in this section, and will help to explain the observed tendency to use more N+N sequences. In what follows, the four variables are described and their potential implications in the use of N+N structures explored.

4.1.1 Text category

Analysis of the corpus of written English has taken differences across genres into account, since these differences may imply differences in the number of nominal modifiers used as well as differences in the reasons why those nominal modifiers are used. As will be explained in Section 4.2, the main genres into which the corpus has here been divided are journalistic language (Reportage and Editorial), scientific language, and narrative language (Fiction and Belles Lettres, Biographies, Memoirs). The five text categories are arranged into two different groups: Reportage, Editorial and Science (non-narrative genres), and Fiction and Belles Lettres, Biographies, Memoirs (narrative genres). It is expected that non-narrative texts will exhibit a higher proportion of nominal premodifiers than narrative genres. This is due to the belief that non-narrative genres resort to premodification by nouns, since, in the case of journalistic texts, they provide readers with a great density of information using the lowest

number of words. In what follows, an account of the main characteristics of these genres is given.

The English language has existed in printed form for over 400 years. The earliest newspapers, such as *The Weekly Newes* (established 1662) and *The London Gazette* (1666) offered general information as well as information about shipping. The most influential newspapers, like *The Times*, emerged in the 18th century, with the most important English-language news agencies, including *Reuters* and *Associated Press*, appearing in the following century. The technological advances of the Industrial Revolution facilitated the spread of newspapers written in English, which, with the advent of the steam train, could be distributed on a massive scale to a diverse community of readers.

Written press style has changed over time, as newspapers have evolved in terms of both their content and format. The communicative goal of journalistic language consists in transmitting as much information as possible by means of messages which are intended to be disseminated widely. The fundamental basis for the structure of informative language is that of the "rule of the falling interest" or "inverted pyramid", whereby information begins with an account of the most important content. This content is ordered depending on the previous information on the topic, along with explanations and details. This implies that there is a tendency to concentrate the most interesting information in the first (lead) paragraph. Typically, five *wh-questions* must be answered by journalists in the opening paragraph of their stories:

What? When? Where? Who? Why?

This method demands that information be given precisely and clearly. Once this is done, there is a need for creating a cohesive text which also has rhythm and a certain style. In order to obtain that coherence journalists must:

(i) employ a clear, simple and concise language,

(ii) limit the use of adjectives,

(iii) avoid the use of subordinate clauses and appositions,

(iv) maintain a sober and distant tone.

Journalists must bear in mind not only the new information provided but also any related information already known by the audience. Thus, superfluous data must be elided in order to avoid redundancy and the consequent waste of space and time. This style has been known as *journalese*. However, the label *journalese* has frequently had pejorative connotations, and many have referred to it as exactly the kind of language which should be avoided in press. In this sense, Crystal & Davy (1973: 173) point out to the difficulties in defining it strictly, adding that *journalese* "(…) is rarely more than a vague and (sometimes nastily) pejorative criticism of a way of writing that people feel is in some way typical of the press or a particular paper." However, the kind of English used in the press is rather heterogeneous in style, differing in a number of ways as a result of the different audiences that newspapers have. Hence, Crystal & Davy (1973: 173) prefer to define *journalese* as "(…) a blend of what is characteristic of a number of different kinds of journalistic material." Given all this, Crystal & Davy decide to study journalistic language from the point of view of two different newspapers. There are linguistic differences between them, but there are also similarities, which can in general be taken as characteristic of *journalese*.

In their study, they took as a sample two reports from different newspapers, the *Daily Express* and *The Times*, about the same news item. Thus, they could observe how the same information is processed in a different way depending on the newspaper. Differences in the typographic elements employed were found, such as the use of different font sizes, capital letters, etc. There were also differences in sentence structure: in the case of *Daily Express*, sentences were shorter and each paragraph contained fewer sentences than in *The Times*, where sentences were more complex and each paragraph included more of them.

They also studied the nominal group and noted a much more complex pre- and post-modification of nouns than in everyday speech. Whereas in the *Daily Express* they found a lot of modifying items and also what they called "new adjectival formations such as *hoped-for* or *computer-made*", in the case of *The Times* modifying position was filled by more technical terms. Among them, Crystal & Davy (1973) mention modifying nouns. In their work, they do not distinguish between modifying nouns and adjectives, and refer to the former as adjectives when pointing out that: "Many of these adjective-plus-noun groups function almost as compound nouns, e.g. *routine procedure*, *electronic computer*, *forecast chart*, *pressure distribution*." Finally, they remark that the use of these premodifying elements contributes to the *descriptive precision* of the newspaper article.

Scientific language is also a non-narrative genre, and as a consequence we would also expect it to display a high proportion of N+N structures. However, the reasons for the use of N+N sequences here are different from those adduced for journalistic language. English has become the language of global scientific information interchange, with most scientific research throughout the world now published in English. However, as noted in Kaplan (2001: 17), there is nothing in the natural characteristics of English or of English speakers which make it inevitable that English be the language of international scientific research. The

reasons for this choice of language can be found in the Industrial Revolution, which was especially dominant in Great Britain, and the new discoveries that it brought about (cf. Crystal 2007). People from other countries needed to learn English in order to get in contact with these new technologies and discoveries. Similar developments took place in America. There seemed to be a stream of influences between Great Britain and America, and research, as well as researchers, moved freely between the two countries. As a result, research in the 18th and 19th centuries was mainly written in English. As far as the 20th century is concerned, Crystal (2007: 86-87) refers to the 1st World War and the League of the Nations, which adopted English as one of the two official languages (the other being French). Kaplan (2001: 12) also notes the 2nd World War settlements and the birth of the United Nations, as well as the invention of the computer, as developments which provided the conditions to solidify English as the main language of science and technology. Kaplan (2001) also points to the heavy dependence on science and technology during the war years which brought about a growth of scientific activity. Furthermore, the USA's scientific infrastructure was undamaged by the war, and as a consequence America was in a position to assume leadership in science and technology after 1945. As a result, English is used today as an intermediary language or *interlingua*, and scientists see enhanced opportunities for promoting their own research, knowing that publication in international scientific journals depends on them writing in the English language.

The language of science is characterised primarily by the use of technical vocabulary. However, speakers of a language are able to recognise scientific language not only by its terminology but through other features of such a specialised textual category. Thus, according to Halliday (2006: 194), a prototypical clause of scientific English contains:

(i) A simple structure (SVO).

(ii) A process in which X would explain Y, setting up a logical relation between nominal groups.

(iii) Head nouns which are usually nominalisations of processes (e.g. *conclusion* < *conclude*).

Hence, the language of science can also be characterised as being more nominal than clausal. In this sense, Halliday (2006: 102-103) uses (55a) and (55b) to show that the same statement may be written in two different fashions.

(55a) Prolonged *exposure* will result in rapid *deterioration* of the item

(55b) If the item is *exposed* for long it will rapidly *deteriorate*

The lexical items in both examples are the same (varying only in their morphological shape; e.g. from the verb *deteriorate* to the noun *deterioration*). Differences are of a grammatical nature: in the first example all the "lexical matter" is concentrated into nominal groups, such as *prolonged exposure* and *rapid deterioration of the item*; in the second case, the elements are configured in the form of clauses. Example (55a) is typically found in scientific language, but whereas (55b) implies the same, it is not typical of scientific texts. According to Halliday (2006: 102) example (55a) sounds more "scientific" than (55b), that is to say, it is filled with more "authority and wisdom" than the second example. The reasons for this nominal style in scientific writing are twofold:

(i) The technicality of scientific discourse.

(ii) The rationality of the statements contained.

Thus, the grammar of scientific language itself helps in the expression of messages rich with technical meanings. Also, the grammar of scientific language, and more particularly nominal style, reflects the way in which science presents information: arriving at certain conclusions by means of observations and experimentation, progressing from one step to another through a process of deductive logic (Halliday, 2006: 123).

Narrative genres, on the other hand, are not expected to display such a high number of N+N sequences as non-narrative genres do. Literary language is also related to everyday language; this is especially so in the case of fiction, since the fictional genre commonly seeks to reflect language as it is used in everyday speech. As a result, features of everyday speech can appear in literary language, but features of literary language are also found in non-literary texts.

Carter (1997: 164) points out that the main characteristics of literary language are probably the use of metaphor and creativity. As a consequence, lexical innovations are used frequently in this kind of language. Compounding can be used, as Blake (1990: 60) suggests, as a means to create or suggest another type of style. Such is the case of a word like *gogglebox*, which when used in literature may suggest a colloquial style, reflecting a light-hearted derision for the television typical of casual everyday speech. In addition, the method of using sequences of nouns is a means of creating new words which are transparent to readers, who otherwise may find difficulties in understanding loanwords, as in *red-making* for *incarnadine*. Blake (1990) also points out that the repetition of a word or its use combined with another can be a means for achieving **cohesion** within the language. As a result, it may

be expected that a great number of N+N sequences are used in literary language. However, findings from the corpus study may reveal this is not the case, and indeed Blake (1990) points out that the phenomenon of compounding in English is not so widely used as a means of expanding vocabulary. Conversely, loan words from Latin or Greek are much more widely used for this purpose.

4.1.2 Speech community

The corpora chosen for the present research allow for a comparative study of ongoing changes in two national varieties of English, American and British English. Their role with respect to N+N structures is hypothesised here as being different as regards the use and the morphosyntactic patterns of N+N structures. For that reason, an overview of the situation of each national variety will be useful.

As already noted, American English was adopted after the 2nd World War as the language of technological development and research, due to the fact that the scientific infrastructure in America was undamaged by the war, with America coming to assume a leadership in science and technology. American English, then, became the linguistic counterpart of technological development. As a result, it seems that the supremacy of American English as the language of technology and research led to a spread of its influence to other areas, especially those of business and economy, until American English became the shared language of a globalised world.

Additionally, as Hundt (1997) notes, there are various differences in morphology and syntax between American and British English, which are evidence of the fact that American English is more innovative than British English. Such an assertion clearly supports the idea that there may be a stream of innovation in American English through the spread of newly coined N+ N sequences, and indeed this will be shown in Section 4.4.

4.1.3 Time period

As Biber & Clark (2002: 53-54) point out, the increase in the use of N+N sequences took place in English from the 1950s onwards. The different periods represented in the corpora of written English (the 60s and the 90s) imply a thirty year time span, and clearly this may reflect some changes in the use of nominal premodifiers. As noted in Mair (1997: 196-197), corpora may not serve to explain the origins of an innovation, but they undoubtedly allow us to focus on the spread of an innovative element, in this case N+N structures. The decade of the 1960s saw a broad sociological transition from a rigid and hierarchical world to a freer and more globalised society. Such social changes may have implied changes also in the language of social interaction, and the increase of N+N structures may be considered to be a symptom of this change. This hypothesis will be tested in the analysis of the corpus data.

4.1.4 Mode

Differences between spoken and written discourse in the use of N+N sequences have never been previously studied. However, we can expect that, given that spoken discourse employs a lower number of nouns as a general rule (cf. Halliday 1989), the results derived from the corpus may reveal that the use of N+N sequences in spoken English is not as frequent as it is in written language.

4.2 The corpus

The main aim of the present investigation is to study the evolution and use of nominal premodifiers in Present Day English. For that purpose, six computerised corpora of written and spoken English have been selected. For written English these are the *Lancaster-Oslo/Bergen Corpus* (LOB; compilation year: 1961), the *Freiburg-Lancaster-Oslo/Bergen Corpus of British English* (FLOB; compilation year: 1991) and their American counterparts,

the *Brown Corpus of Standard American English* (BROWN; compilation year: 1961) and the *Freiburg-Brown Corpus of American English* (FROWN; compilation year: 1992) (cf. Mair 2002).[20] These four corpora allow for analyses from both a diachronic and synchronic perspective. Two more corpora were chosen for spoken English, the *International Corpus of English: the British Component* (ICE-GB; compilation years: 1990-1993) and the *Corpus of Spoken Professional American English* (CSPAE; compilation years: 1994-1998). In what follows, a detailed description of the chosen corpora is given.

4.2.1 The corpora of written English

As noted, the BROWN/FROWN, LOB/FLOB are four matching corpora of American and British written English which allow us to focus on three different variables: national variety (American vs. British English), time period (1960s vs. 1990s), and text category (to be discussed further, below). Each of the four corpora contains 500 samples of approximately 2,000 words each, resulting in a total of 1,000,000 running words per corpus, which are distributed into fifteen textual categories and different subcategories as shown in Table 4.

[20] Available in Hofland *et al*. (1999).

TEX CATEGORIES	NUMBER OF SAMPLES		NUMBER OF WORDS	
	BROWN/FROWN	LOB/FLOB	BROWN/FROWN	LOB/FLOB
A: Press: Reportage	44	44	88,000	88,000
B: Press: Editorial	27	27	54,000	54,000
C Press: Reviews	17	17	34,000	34,000
D Religion	17	17	34,000	34,000
E Skills and Hobbies	36	38	72,000	76,000
F Popular Lore	48	44	96,000	88,000
G Belles Lettres, Biographies, Memoirs	75	77	150,000	154,000
H Miscellaneous	30	30	60,000	60,000
J Learned/Science	80	80	160,000	160,000
K General Fiction	29	29	58,000	58,000
L Mystery and Detective Fiction	24	24	48,000	48,000
M Science Fiction	6	6	12,000	12,000
N Adventure and Western Fiction	29	29	58,000	58,000
P Romance and Love Story	29	29	58,000	58,000
R Humour	9	9	18,000	18,000
TOTAL	500	500	1,000,000	1,000,000

Table 4 Distribution of text categories in the corpora of written English

Each sample in the corpora starts at the beginning of a sentence and comprises around 2,000 words. All texts are prefaced by a number of identification codes which provide details of text-type, corresponding subdivisions, and line numbers, as shown in (56)[21].

(56)

```
K01   1 **[375 TEXT K01**]
K01   2 ^*0*'Are you sure you're quite fit? ^It's terrible weather.**' He
K01   3 turned round to face his colleague.
K01   4   |^For some esoteric reason Fairbanks always completed the buttoning
K01   5 of his flies in the main area of the lavatory. ^*'Good morning,
K01   6 Harold,**' he said. ^*'I'm pretty chipper, thanks, considering.**' ^He
K01   7 was a tiny man, of fanatical neatness, his remaining hair snowy, and
K01   8 cropped like a Prussian's. ^His white shirt cuffs were actually
```

This eight-line extract is taken from the first sample of the General Fiction category from the LOB corpus. For the identification here of the examples taken from the corpus, the following notation will be used: the capital letter corresponding to a specific text category[22] plus the line number, together with the number of sample to which the excerpt belongs, as shown in (57).

(57) Shirt cuffs (LOB K 01 L8)

- Corpus (LOB)
- Text category (K General Fiction)
- Sample number (01)
- Line number (8)

[21] My own emphasis.
[22] Each capital letter which is employed to name a text category corresponds to those shown in the corpora, which can be seen in Table 4.

4.2.2 The corpora of spoken English

The *International Corpus of English: Great Britain* (ICE-GB) is the British component of a larger corpus, the *International Corpus of English*, which is currently being compiled and will include texts from different national varieties of English (cf. Greenbaum 1991). It was compiled at the *Survey of English Usage* (SEU), University College London, and comprises contemporary British English texts produced during the years 1990-1993 and designed to cover both spoken and written English. The corpus is 1,000,000 words long, divided into 500 samples of approximately 2,000 words each, across eleven textual categories and thirty-two subcategories. The distribution of the total words is uneven, with the written part comprising 400,000 words (200 samples) and the spoken part 600,000 words (300 samples).

As far as the spoken section of the corpus is concerned, it is divided into *Dialogues*, *Monologues* and *Mixed texts*. *Dialogues* are further subdivided into *Private* and *Public texts*. As for the former, these are divided into *Direct conversations* and *Telephone calls*. The latter include the most formal kinds of text: *Classroom lessons*, *Broadcast* (which is further subdivided into *Discussions* and *Interviews*), *Parliamentary debates*, *Legal cross-examinations* and *Business transactions*. *Monologues* are divided into *Unscripted* and *Scripted texts*. The former are subdivided into *Spontaneous commentaries*, *Speeches*, *Demonstrations* and *Legal presentations*. The *Scripted texts* are themselves subdivided into *Broadcast talks* and *Non-broadcast speeches*. Finally, *Mixed texts* include *Broadcast news*. Table 5 shows the distribution of text categories in the spoken part of the ICE-GB corpus.

<table>
<tr><th colspan="3">TEXT CATEGORIES</th><th>NUMBER OF SAMPLES</th><th>NUMBER OF WORDS</th></tr>
<tr><td rowspan="8">DIALOGUES</td><td rowspan="2">PRIVATE</td><td colspan="2">Direct conversations</td><td rowspan="2">100</td><td rowspan="2">200,000</td></tr>
<tr><td colspan="2">Telephone calls</td></tr>
<tr><td rowspan="6">PUBLIC</td><td colspan="2">Lessons</td><td rowspan="6">80</td><td rowspan="6">160,000</td></tr>
<tr><td rowspan="2">Broadcast</td><td>Discussions</td></tr>
<tr><td>Interviews</td></tr>
<tr><td colspan="2">Parliamentary debates</td></tr>
<tr><td colspan="2">Legal cross-examinations</td></tr>
<tr><td colspan="2">Business transactions</td></tr>
<tr><td rowspan="6">MONOLOGUES</td><td rowspan="4">UNSCRIPTED</td><td colspan="2">Spontaneous commentaries</td><td rowspan="4">70</td><td rowspan="4">140,000</td></tr>
<tr><td colspan="2">Speeches</td></tr>
<tr><td colspan="2">Demonstrations</td></tr>
<tr><td colspan="2">Legal presentations</td></tr>
<tr><td rowspan="2">SCRIPTED</td><td colspan="2">Broadcast talks</td><td rowspan="2">50</td><td rowspan="2">100,000</td></tr>
<tr><td colspan="2">Non-broadcast speeches</td></tr>
<tr><td colspan="3">TOTAL</td><td>300</td><td>600,000</td></tr>
</table>

Table 5 Distribution of text categories in the spoken ICE-GB corpus

Each sample is classified according to several codes which represent the text category, section, subsection, text number and line, as indicated in example (58).

(58) Noun phrase (S 1 b 7 172)

- Text category (S: spoken)
- Section (1: dialogue)
- Subsection (b: public)
- Text number (7: classroom lesson)
- Line (172)

The American counterpart of the British spoken corpus is still in preparation, and thus it is preferable to find an alternative corpus which, to a greater or a lesser extent, can be adapted to the structure of the ICE-GB corpus. In this regard the corpus that best fits our purposes is the *Corpus of Spoken Professional American English* (CSPAE), which contains transcriptions of formal conversations collected from 1994 to 1998. As a consequence, while in the case of written English the corpora match strictly, this is not the case with the corpora of spoken English. Nevertheless, both of these spoken corpora comprise samples collected from formal spoken language, which is the main focus of interest for the present investigation.

The CSPAE comprises 2,000,000 words, and is divided into two main sub-corpora. The first is a record of academic discussions, and contains two different subsections: *Faculty meetings* held at the University of North Carolina, which contains 3 samples; and *Committee meetings*, held at different locations around the United States, which contains 7 samples. The second sub-corpus includes transcriptions from press conferences in the White House, mainly

of question and answer sessions, and contains 6 samples. The distribution of the sub-corpora and their samples is presented in Table 6.

SUB-CORPORA		SAMPLES	WORDS
White House		94	0.9 million
		95	
		96A	
		96B	
		97A	
		97B	
Meetings	Faculty	95	1.1 million
		96	
		97	
	Committee	6A97	
		6B97	
		8A97	
		597	
		697	
		797	
		897	

Table 6 Distribution of texts in the CSPAE corpus

For the purposes of the present investigation, I have opted for the untagged version of this corpus, since the search for N+N structures in the corpora has been made manually. Hence, the only extra information which is here provided for data from this corpus is the name of each speaker in the dialogues.

(59)

> <SP>MANDEL:</SP> I'm David Mandel. I direct the MPR Center for Curriculum and Professional Development in Washington, D.C. I am responsible for the staff support for both the development of the mathematics specifications and the reading specifications on this national initiative.
> And we are joined here by Cathy Seeley from the University of Texas who is the lead writer for this committee and by Sharon Kallus who is a teacher from Pfulgerville, Texas.
> <SP>DOSSEY:</SP> Okay. And then, Wayne.
> <SP>MARTIN:</SP> Yes. That is timely.

In order to classify the samples from the corpus, I have taken the same codes that are employed in CSPAE:

(60) Access place (FACMT97)
- Section (FAC: faculty)
- Sub-corpus (MT: meeting)
- Sample (97)

4.2.3 Text sampling

After selecting the corpora, the next step involved the selection of the text categories for each corpus. In the case of the corpora of written English, they are divided into fifteen text categories, as shown in Table 4 above (cf. Section 4.2.1). In line with one of the main hypotheses of the present research, non-narrative genres are expected to contain more N+N structures than texts which are narrative in nature (cf. Brown & Yule 1983; Biber & Clark 2002). Because of this, I have chosen the five text categories shown in Table 7.

<table>
<tr><td rowspan="3">NON-NARRATIVE</td><td rowspan="2">NON-ABSTRACT</td><td rowspan="2">JOURNALISTIC LANGUAGE</td><td>NON-PERSUASIVE</td><td>A Press: reportage</td></tr>
<tr><td>PERSUASIVE</td><td>B Press: editorial</td></tr>
<tr><td>ABSTRACT</td><td>SCIENTIFIC LANGUAGE</td><td colspan="2">J Science</td></tr>
<tr><td rowspan="2">NARRATIVE</td><td>EXTENSIVE REFERENCE</td><td colspan="3">K General fiction</td></tr>
<tr><td>EXPLICIT REFERENCE</td><td colspan="3">G Belles Lettres, Biographies, Memoirs</td></tr>
</table>

Table 7 Distribution of text categories according to linguistic dimensions

Following Biber (1988), text categories have been divided according to different linguistic dimensions, the necessity of which is easy to appreciate. As noted in Biber (1988: 13), "(…) a linguistic dimension is determined on the basis of a consistent co-occurrence pattern among features", that is, features which co-occur in a text define a linguistic dimension. Linguistic dimensions allow us to establish relations among texts of different kinds within particular situational or functional parameters (e.g., formal vs. informal, or interactive vs. non interactive). However, as Biber himself points out, these dimensions define "(…) continuums of variation rather than discrete poles" (ibid.: 9), which implies, for example, that it is better to describe a text as more or less formal rather than fully formal or fully informal. In other words, linguistic dimensions serve to "(…) specify the 'textual relations' among different kinds of texts in English" (ibid.: 19); as a result, variation in genres is scalar along a

continuum and as such these dimensions can affect the characterisation of a given text category to different degrees. Figure VII illustrates this continuum.

	+ NARRATIVE
7	Romantic fiction
6	Mystery, science and **general fiction**
	Adventure fiction
5	
4	
3	
2	**Biographies**
	Spontaneous speeches
1	Humour
	Prepared speeches
	Personal letters
0	**Press reportage**
	Popular lore
	Face-to-face conversation
	Religion; **editorials**
-1	Interviews
	Press review
-2	Telephone conversations
	Professional letters
	Academic prose[23]
	Official documents
-3	Hobbies
	Broadcast
	- NARRATIVE

Figure VII Mean scores of Dimension 2, *Narrative vs. non-narrative concerns*, as shown in Biber (1988: 136); emphasis added

[23] *Academic prose* is used by Biber (1988) to refer to *Science*, a term which is preferred here since it matches that used in the LOB, BROWN, FLOB and FROWN corpora.

As noted in Figure VII, Fiction has high scores in the scale of Dimension 2, which implies that it is more narrative than is Press: reportage, and even more so than Science (represented by "Academic prose", cf. also footnote 23), which obtains the lowest scores in the scale.

Given these characteristics, there are four linguistic dimensions among those described by Biber (1988) which best account for each text category[24]. The main difference has to do with the second dimension, that of *Narrative vs. non-narrative concerns* (cf. Figure VII), which distinguishes discourse with narrative purposes (Fiction and Belles Lettres, Biographies, Memoirs[25], the latter represented by "Biographies", cf. also footnote 26) from discourse with non-narrative purposes (Press and Science).

Press and Science are distinguished according to the fifth dimension, *Abstract vs. non-abstract information* (cf. Figure VIII), according to which there are texts with a highly abstract and technical information focus (Science) and texts with non-abstract foci (Press).

[24] The linguistic dimensions distinguished by Biber (1988: 115) are: (i) *Informational vs. involved production*, (ii) *Narrative vs. non-narrative concerns*, (iii) *Explicit vs. situation-dependent reference*, (iv) *Overt expression of persuasion*, (v) *Abstract vs. non-abstract information*, (vi) *On-line informational elaboration*.

[25] Although the category Belles Lettres, Biographies and Memoirs is included within narrative genres, the reader should be aware that some samples belonging to this category deviate to a certain extent from the prototypical features of narrative texts.

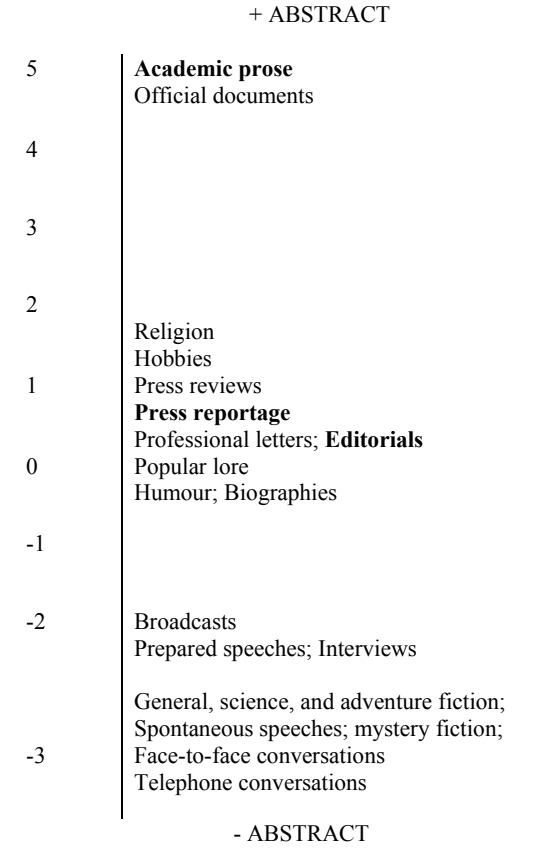


Figure VIII Mean scores of Dimension 5, *Abstract vs. Non-Abstract Information*, as shown in Biber (1988: 152); emphasis added

Biber (1988: 12) characterises scientific discourse as specialised, planned and extremely nominal as well as structurally complex, whereas press language is defined as concerned with the audience to which it is directed, in order to maintain a relationship with that audience, and is also concerned with temporal and physical situations (ibid.: 70-71). In spite of this, Press categories still show a positive, although minor, value on Dimension 5 since, as noted in Biber (1988: 154), these genres show a twofold purpose: they report events involving concrete, often human, referents, but they also discuss the implications of those events in conceptual terms.

Within Press, Reportage and Editorial are distinguished following the fourth dimension, *Overt expression of persuasion*.

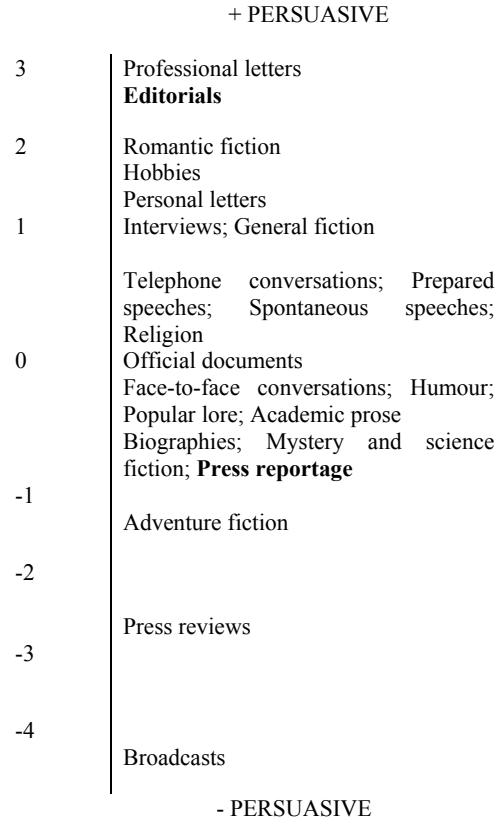


Figure IX Mean scores of Dimension 4, *Overt Expression of Persuasion*, as shown in Biber (1988: 149); emphasis added

Whereas Editorial is characterised by the presence of the point of view of the author, who may well use an argumentative style in order to persuade readers and who will make broad assumptions concerning specific shared background knowledge, Reportage is not persuasive and merely gives an account of events.

Finally, according to Biber (1988: 71), narrative genres require a considerable amount of shared cultural assumptions and build their own internal physical and temporal context.

However, within narrative text categories, Fiction and Belles Lettres, Biographies, Memoirs differ according to the third dimension, *Explicit vs. situation-dependent reference*.

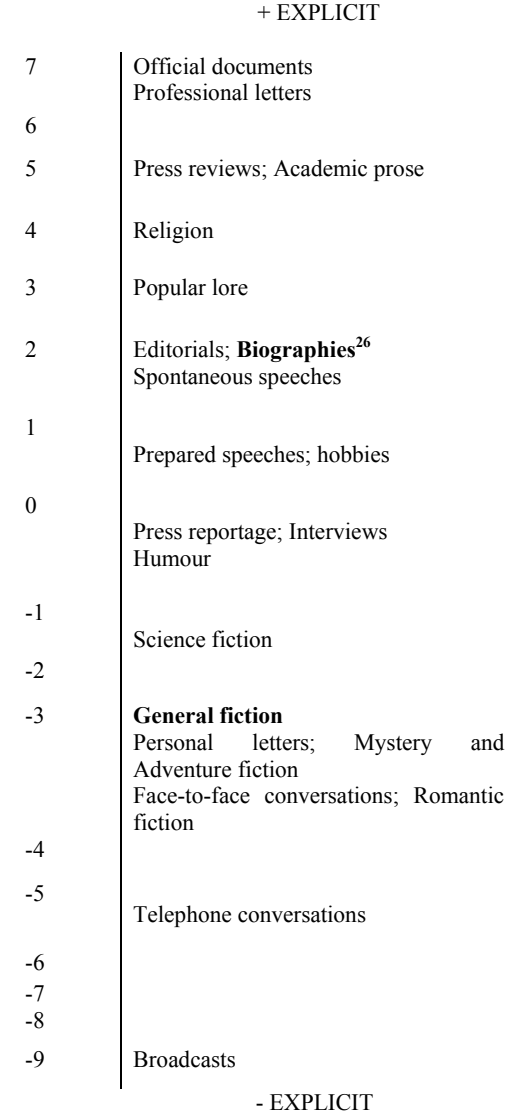


Figure X Mean scores of Dimension 3, *Explicit vs. Situation-Dependent Reference*, as shown in Biber (1988: 143); emphasis added

[26] Belles Lettres, Biographies, Memoirs are included within the category *Biographies* (cf. Table 4 in Section 4.2.1).

While in Fiction there is extensive dependent reference to the temporal and physical context of discourse, in Belles Lettres, Biographies, Memoirs there is an explicit identification of referents in discourse.

Given a distribution based on the previous dimensions, these text categories are supposed to exhibit more or fewer N+N structures in the corpus. As a result, we expect that the results obtained from the corpus research will create a continuum in terms of frequency of the structures, ranging from the highest proportions in non-narrative genres, to lower proportions in narrative categories.

As far as the corpora of spoken English are concerned, the selection of texts has been random since, as noted in Biber (1988: 161), there is no dimension which can make an absolute distinction between written and spoken English. Hence, the main aim of the corpus of spoken English research is to compare findings to those from the written English corpora from the same period and to see how N+N structures develop in spoken language. The chosen corpora of spoken English are representations of formal language and thus we do not expect each category to behave in the same way, as already mentioned for the corpora of written English. Thus, for the ICE-GB corpus, the categories which have been chosen are shown in Table 8.

<table>
<tr><td rowspan="3">DIALOGUES</td><td rowspan="3">PUBLIC</td><td>Lessons</td></tr>
<tr><td>Parliamentary debates</td></tr>
<tr><td>Legal cross-examinations</td></tr>
<tr><td rowspan="2">MONOLOGUES</td><td rowspan="2">UNSCRIPTED</td><td>Speeches</td></tr>
<tr><td>Legal presentations</td></tr>
</table>

Table 8 Chosen text categories in the spoken ICE-GB corpus

As for the CSPAE corpus, a random selection of texts belonging to the *Faculty meetings* and the *Committee meetings* subsections has been made.

The sampling of texts depends to a large extent on the frequency of use of the item under study. The corpora of written English used in the present research contain a total of 1,000,000 words each, whereas the ICE-GB contains 100,000,000 words and the CSPAE 2,000,000. This is a huge number of words, and analysing such a body of data would entail an equally huge amount of work. However, as noted in Romaine (1982: 111), the representativeness of a given phenomenon within a corpus depends on the frequency of the studied item; in other words, if the phenomenon under study is very common in language, a small sample is all that is required, whereas for a rare phenomenon a larger sample is inevitably needed.

For this reason, a pilot study was carried out in Pastor-Gómez (2006) to test how frequent N+N sequences are in the language and thus to decide on the number of words that need to be drawn from the corpora for analysis. In this preliminary study, the four corpora of written English and three text categories (reportage, editorial and fiction) were selected. As

for each category, only one sample was chosen, which amounted to a total of 24,000 words per category.

	BROWN		FROWN		LOB		FLOB		RESULTS
Reportage	A07	85	A07	42	A05	31	A05	45	36.77%
Editorial	B07	64	B07	91	B05	27	B05	47	41.48%
Fiction	K01	22	K01	42	K01	24	K01	22	21.74%
RESULTS	31.55%		32.29%		15.13%		21.03%		

Table 9 Results obtained in a pilot study

The findings from this pilot study reveal that, even using one single sample, differences among genres are still evident. In general terms, editorial (41.48%) and reportage (36.77%) show a higher proportion of N+N sequences than fiction (21.74%). As far as speech communities are concerned, American English shows a higher proportion of N+N structures (31% / 32%) than British English (15% / 21%). However, the number of N+N sequences in both American and British English increases over time. These proportions may change when the density of the chosen corpora varies but, nonetheless, they give an indication of the kind of results that we are likely to get from a larger analysis. It appears, then, that the number of examples for each category is going to be high. Consequently, the final selection of data is as follows:

For the corpora of written English, ten samples per text category were chosen, giving a total of 20,000 words per text category and 100,000 words per corpus. Since there are four corpora, a total count of 400,000 words will be analysed in the corpora of written English. As far as the spoken English corpora are concerned, since those are compared to the written English corpora from the same period (i.e., the 1990s), a total of 100,000 words is analysed per corpus, making a total of 200,000 words for the corpora of spoken English. As a result, a total of 600,000 words have been manually scanned for the present investigation.

4.2.4 Methodology

The identification of nominal modifiers from the corpora has been a laborious task. Since there is no scope for automatically separating those nouns which are premodifiers from any other kinds of noun, the selection of N+N structures was made manually. In what follows, there is an account of the main criteria employed in this process and an explanation as to why these criteria were used. The data derived from such an exhaustive selection of material are also discussed.

The present empirical research is grounded in the idea that there is an evolution in the use of nominal modifiers of nouns over the course of the 20th century (these constructions being on the increase); and with these nominal modifiers undergoing a change in their status, some become members of a morphological unit, such as a compound noun. Examples arising in the corpora include *pizza shop* (FROWN K1 L6) and *Alaska region* (FROWN B25 L79). However, some restrictions have been applied to those modifying nouns which are themselves modified by an adjective (e.g. ***European Community*** *attempts* [FLOB A5 L81]). Most have been included in the research, due to the fact that being themselves modified does not prevent them from being modifying nouns. Exceptions to this are combinations such as (61).

(61) Full-length sequence (FROWN J16 L169)

Discussing forms such as *all-time* ("an all-time high") or *no-win* ("a no-win situation"), Bauer & Huddleston (2002: 1660) note that these forms do not fit the regular structures for attributive modifiers in NP structure, such as adjective phrases (e.g. *a **red** car*) or nouns (e.g. *a **noun** phrase*). They are, in Bauer & Huddleston's words (ibid.), typically nonce-forms, and they opt for treating them as "compound adjectives." Structures of this type occurring in my data, and, not being prototypical, have been omitted from the analysis, include *full-length* as quoted above and the following.

(62)

full-page	left-hand
high-profile	long-term
high-risk	low-scale
high-resolution	present-day
large-scale	second-degree

This is a list of some of the forms which have not been included in the corpus research given that they seem to constitute a new adjectival rather than nominal unit. Indeed, if the modifying adjective is omitted from these, the modifying noun by itself loses its original sense.

(63) high-resolution frequency vs. resolution frequency

Measure expressions have also been excluded (e.g. *20 year age*, *June 23 election* or *20th Century Fox*) since they also deviate from what has been understood as a prototypical noun modifier. As noted in Bauer & Huddleston (2002: 1660), although they have a singular noun base, they do not qualify as nominals, which have plural forms of the noun (e.g. *He is 20* ***years*** *old*). In fact, Bauer & Huddleston (2002) classify these expressions as compound adjectives which can be combined with other adjectives to form larger compounds (e.g. *A* ***20 year old*** *student*). Temporal expressions such as *Monday morning* or *February afternoon* are also excluded. Similarly, morphological N+N structures which are written as one word have been excluded from the final count. Appendix V includes a compilation of these compound nouns.

During the sampling process, an especially problematical issue was that of forms with *–ing* deriving from verbs. Two criteria were applied, according to the status and the level of institutionalisation of such forms. Thus nouns such as *wedding* and *building* were included (e.g. *wedding ceremony* [FLOB A10 L47]) since their status as nouns has been institutionalised over time and they are nowadays nouns in the full sense of the word, that is, they have acquired a specialised meaning and show prototypical features of nouns such as inflection for number. Problems arise with *–ing* forms such as *farming* in *farming unions*, especially if we consider that there are N+N structures such as *farm workers* (FROWN G10 L44). This is an example of pre-emption, in which a noun can be found in the same position with the same premodifying function. Thus, *farming* differs from prototypical nouns or verbs; it is halfway between them and has properties which are clause-like and phrase-like (cf. Hopper & Thompson, 1984: 738; Raumolin-Brunberg, 1991: 86). In fact, Payne & Huddleston (2002: 444) refer to items of this kind, such as *gleaming* in *the gleaming showroom*, as verb phrases with the function of attributive modifiers. As such, the decision

here has been to omit them from the present investigation, since the inclusion of modifiers like these would imply a deviation from the main objective of our research. As a result, constructs like *waiting list, drawing board*, and *reading group* have been excluded. Conversely, *–ing* forms acting as head of the noun phrase have been included (e.g. *Bible reading* [BROWN B12 L115]), since their category membership is beyond doubt. As noted in Payne & Huddleston (2002: 81-82), gerundial nouns differ from verbs in several respects:

(i) In the kind of complements they take. Whereas verbs take noun phrases, gerundial nouns take prepositional phrases (e.g. *he's reading* ***the Bible*** vs. *the reading* ***of the Bible***).

(ii) In the kind of modifiers they have. Whereas verbs are modified by adverbs, nouns are modified by adjectives (e.g. *he's* ***exhaustively*** *reading the Bible* vs. *the* ***exhaustive*** *reading of the Bible*).

(iii) In the use of determiners. They can combine with nouns but not with verbs (e.g. **he's* ***the*** *reading the Bible* vs. ***the*** *reading of the Bible*).

(iv) In the inflection for plural. Whereas gerundial nouns can often inflect for number, verbs cannot (e.g. **he's* ***readings*** *the Bible* vs. *the* ***readings*** *of the Bible*).

Finally, abbreviations and acronyms have been included in the final count (e.g. *TV actor* [FROWN B5 L184], *NATO headquarters* [BROWN G3 L119]). As noted by Bauer & Huddleston (2002: 1632-1634), they are a result of a word formation process and behave grammatically like ordinary nouns (e.g. they inflect for plural in the regular way, as in *TVs*).

4.3 Overview of the data

The distribution of the samples under analysis is laid out in Appendix I. With the exclusions noted and once the samples have been analysed, the resulting data are as shown in Table 10.

	N+N	GENRES	
AMERICAN ENGLISH I (BROWN)	1,929	Reportage	653
		Science	458
		Editorial	394
		Fiction	218
		Belles Lettres, Biographies, Memoirs	206
BRITISH ENGLISH I (LOB)	1,467	Reportage	449
		Science	287
		Editorial	360
		Fiction	205
		Belles Lettres, Biographies, Memoirs	166
AMERICAN ENGLISH II (FROWN)	2,210	Reportage	657
		Science	459
		Editorial	524
		Fiction	204
		Belles Lettres, Biographies, Memoirs	366
BRITISH ENGLISH II (FLOB)	1,860	Reportage	586
		Science	388
		Editorial	385
		Fiction	216
		Belles Lettres, Biographies, Memoirs	285
TOTAL	7,466	Reportage	2,345
		Science	1,592
		Editorial	1,663
		Fiction	843
		Belles Lettres, Biographies, Memoirs	1,023

Table 10 N+N structures in the corpora of written English[27]

[27] Note that American and British English from the 1960s are identified as *American English I* and *British English I*, with the corresponding corpora from the 1990s *American English II* and *British English II*.

Table 10 shows the number of N+N structures which have been found for each text category and corpus. At first glance, we can see that all corpora show slight differences in the number of N+N sequences found. Further differences can be seen in the distribution of N+N sequences between text categories. Thus, non-narrative genres (i.e., Press and Science) contain a higher number of N+N sequences than narrative genres (i.e., Fiction and Belles Lettres, Biographies, Memoirs), as illustrated in Table 11.

	REPORTAGE		SCIENCE		EDITORIAL		FICTION		BELLES LETTRES, BIOGRAPHIES, MEMOIRS	
	N+N	%	N+N	%	N+N	%	N+N	%	N+N	%
AMERICAN ENGLISH	1,310	31.65%	917	22.18%	918	22.15%	422	10.19%	572	13.82%
BRITISH ENGLISH	1,035	31.11%	675	20.29%	745	22.39%	421	12.65%	451	13.55%

Table 11 Percentages of N+N sequences according to text category

Whereas non-narrative genres show around 20%-30% of the N+N sequences found in all the corpora, narrative genres show 10%-13% of sequences. As expected, Reportage and Science are the two non-narrative genres in which more N+N structures are found for both British and American English, whereas Fiction and Belles Lettres, Biographies, Memoirs show a lower proportion, again for both speech communities. What can also be observed at first glance is that the number of N+N structures is by far the highest in Reportage, with a total of 1,310 and 1,035 N+N sequences for American and British English respectively, which amounts to 31% of all nominal premodifiers found in the data. Following Reportage, the category of Science also exhibits a relatively high number of nominal premodifiers, exceeding 20% in both

American and British English. Conversely, Fiction shows a lower proportion, with only 422 (10.19%) and 421 (12.65%) nominal premodifiers found in American and British English respectively. As seen in the non-narrative text categories, Editorial also shows a high proportion of nominal premodifiers (22%), with a frequency comparable to that of Science. So, at first glance it seems that there are two clear poles in the use of N+N sequences, Reportage (highest number) and Fiction (lowest number), with Science and Editorial at an intermediate position and Belles Lettres, Biographies, Memoirs somewhat closer to the position held by Fiction. Thus, the distribution of text categories would be as shown in Figure XI.

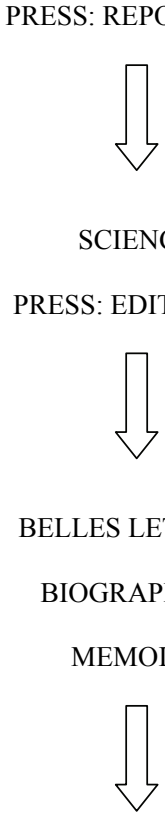


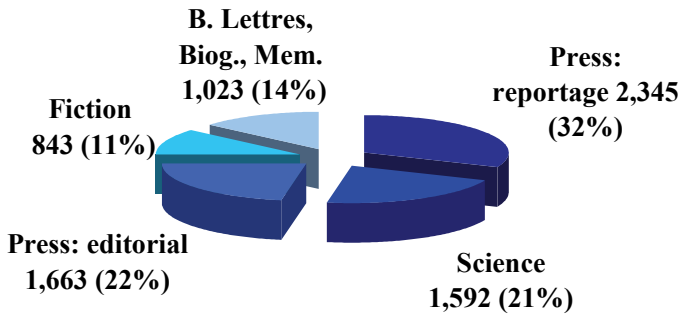
Figure XI Distribution of text categories according to N+N structures found in the corpora

The figure here shows the general distribution of text categories in American and British English according to the number of N+N structures found from top to bottom. However, a more detailed approach to the evolution of N+N structures according to the variables introduced in Section 4.1 can lead to further differences. In what follows, a more comprehensive analysis of the N+N sequences found according to text category, speech community and time period is offered.

4.3.1 Text category

As already mentioned, differences are manifest among the various text categories into which the corpora of written English have been divided. Non-narrative genres are expected to show a greater number of N+N sequences than narrative genres. This prediction was confirmed and Figure XII displays the general results per text category.

Figure XII
Distribution of N+N sequences according to text category

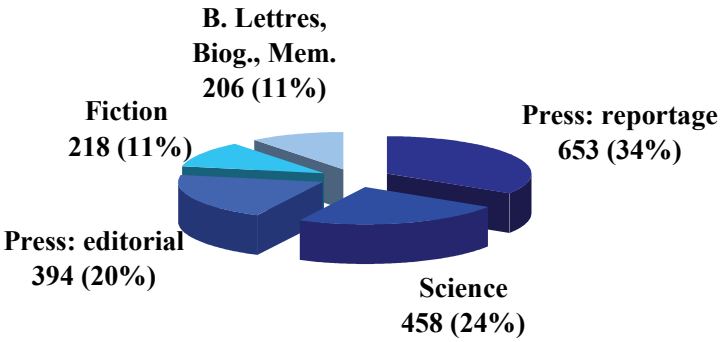


Non-narrative genres contain three quarters of all the N+N sequences found in the four corpora of written English. Press: reportage contains 32% of the N+N sequences found, whereas Fiction contains only 11%.

4.3.2 Speech community

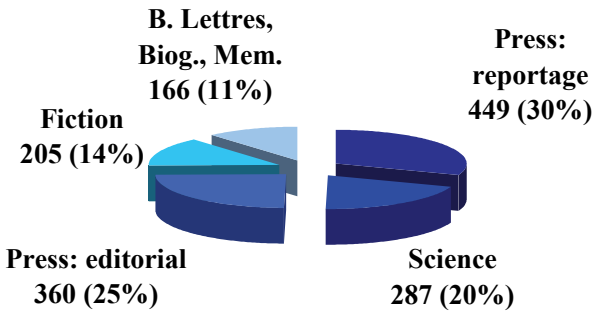
Differences between American and British English were expected in the number of N+N sequences that each speech community employs. In particular, there were reasons to predict that American English uses a higher proportion of nominal premodifiers than British English. Figure XIII illustrates the findings from the analysis of American English I.

Figure XIII
Distribution of N+N sequences in American English I according to text category



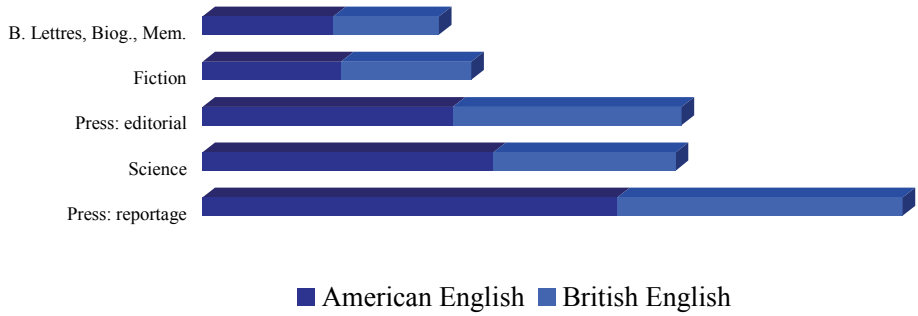
As expected, non-narrative genres are the categories with the highest number of N+N sequences, whereas Fiction and Belles Lettres, Biographies, Memoirs account for only 11% of the total number of N+N structures each. Figure XIV refers to British English.

Figure XIV
Distribution of N+N sequences in British English I according to text category



Once again, the supremacy of non-narrative genres is clear to see, with Fiction and Belles Lettres, Biographies, Memoirs again containing the lowest percentages of N+N sequences. Figure XV compares the results from British and American English I.

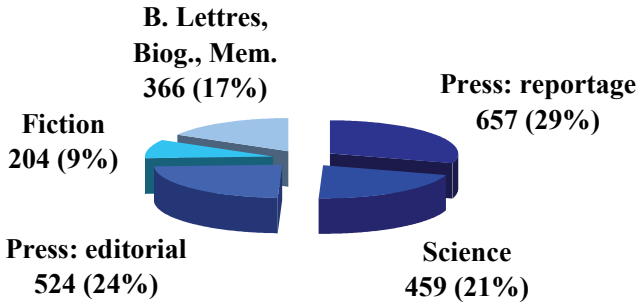
Figure XV
Distribution of N+N sequences in American and British English I according to text category



As can be seen, American English shows a clear supremacy for all genres other than Press: editorial, in which both speech communities display frequency of N+N sequences. Similarly, there are no great differences in Fiction, where N+N structures are found at a lower level.

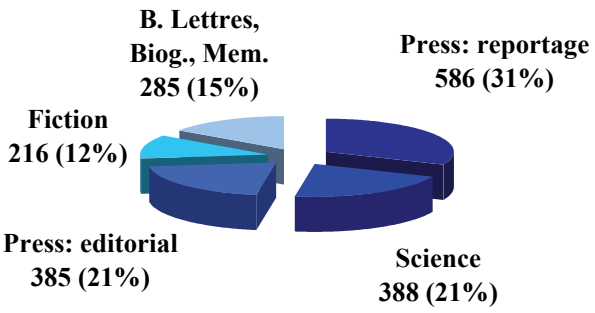
Let us now consider the results for the second period, the 1990s. Differences between text categories in both speech communities are shown in Figures XVI and XVII.

Figure XVI
Distribution of N+N sequences in American English II according to text category



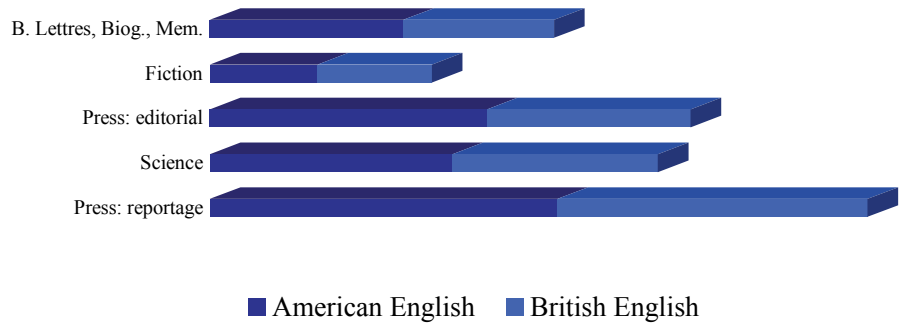
There is again a strong difference between non-narrative and narrative genres. The low percentage shown by Fiction is especially notable, with only 9% of the total N+N sequences found. Figure XVII shows the same distribution for British English.

Figure XVII
Distribution of N+N sequences in British English II according to text category



Here the difference between the N+N sequences found for Press: reportage (31%) and Fiction (12%) is, again, sizeable. Science and Editorial are both at a midway position with 21%. Figure XVIII compares the two speech communities.

Figure XVIII
Distribution of N+N sequences in American and British English II according to text category



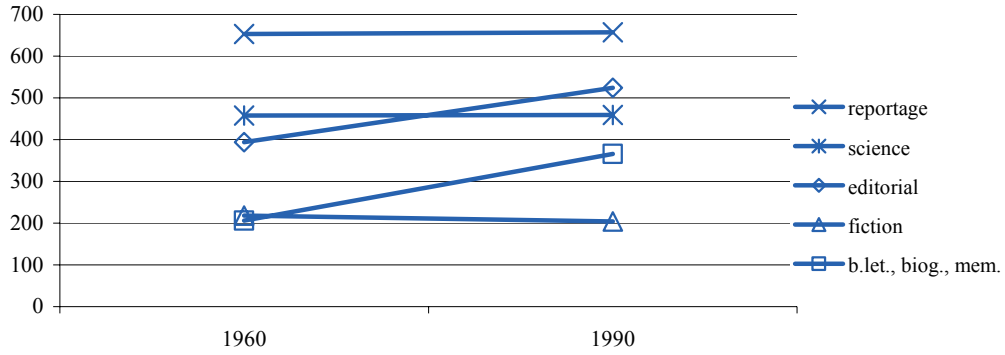
As can be seen, differences between the two speech communities are less evident in the second period. This is probably due to a higher increase in the use of N+N sequences by

British speakers than in the case of Americans. This tendency is especially notable in the case of Reportage and Fiction, the two text categories in which a higher and a lower number of N+N sequences are found respectively.

4.3.3 Time period

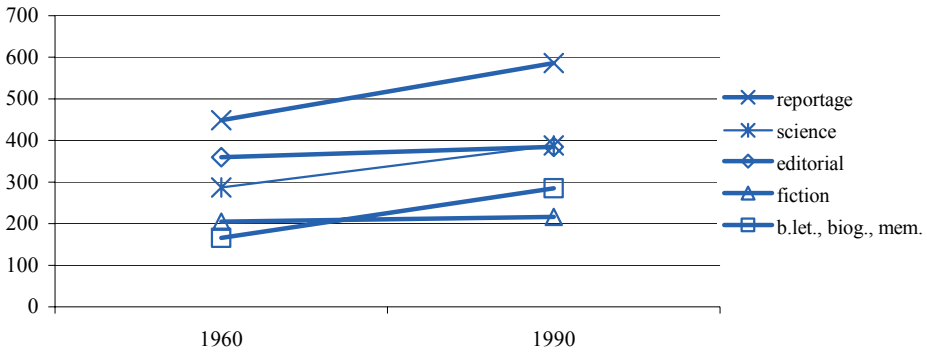
The diachronic evolution of N+N sequences in the two speech communities can be observed by comparing the two periods. Figure XIX illustrates the differences for the corpora of American English.

Figure XIX
Distribution of N+N structures in American English I and II according to text category



The use of N+N structures across the time span of 30 years has increased in American English in Belles Lettres, Biographies, Memoirs and Editorial, whereas for the remaining text categories the rate of use is stable. As far as British English is concerned, Figure XX displays the results.

Figure XX
Distribution of N+N structures in British English I and II according to text category



The evolution of N+N structures in British English over the same period can be characterised by a general increase in all text categories. This is especially the case of Reportage, Science and Belles Lettres, Biographies, Memoirs; Fiction, however, undergoes only a slight increase, as does Editorial.

These findings suggest the increase in the use of N+N sequences in the course of the second half of the 20th century is not always significant, especially in American English, where even though N+N sequences are frequently used, their number has not increased over time. British English, with a lower number of N+N structures, does experience a general increase, especially in those text categories which usually show a high number of N+N sequences, Science and Reportage.

4.3.4 Mode

The analysis of a corpus of spoken English allows for the comparison of the use of N+N sequences from the second period between written British and American English (FLOB and FROWN corpora) and spoken British and American English (ICE-GB and CSPAE). As was

previously hypothesised, the results derived from the corpus of spoken English reveal that the number of N+N structures is notably lower than in the case of written texts.

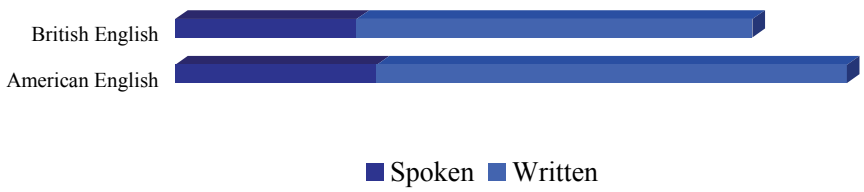
MODE	N+N	SPEECH COMMUNITY	N+N
Written	4,070	American English	2,210
		British English	1,860
Spoken	1,802	American English	948
		British English	854

Table 12 Distribution of N+N sequences in written and spoken language and speech communities

In fact, the number of N+N sequences for written texts is twice that of N+N structures found in spoken English.

Differences between speech communities are shown in Figure XXI.

Figure XXI
Distribution of N+N sequences in spoken and written American and British English II



American English exhibits a higher number of N+N sequences than British English for both spoken and written language. This implies that differences between speech communities are exactly the same for both spoken and written texts.

4.4 N+N structures and lexicalisation

In the previous chapter (Section 3.4.2) the question of lexicalisation was discussed in detail. As was mentioned, lexicalisation is part of the process whereby a structure such as an N+N sequence may become established, undergoing institutionalisation, the structure coming to be used and accepted by the community of speakers, and lexicalisation, as a result of which that structure becomes idiosyncratic. In the present corpus research we wonder which N+N sequences have undergone that process of lexicalisation in which the newly acquired idiosyncratic features may cause the sequence to be obscured from a semantic and a formal point of view. It has also been pointed out that the importance of the process of lexicalisation is such that it can lead to the creation of new lexicon. Consequently, an empirical study into lexicalisation in the present data has been considered to be of great relevance. It will allow us to observe the importance of N+N sequences in the process of word-formation. Since the number of N+N structures found for all corpora has been considerably high, it is expected that the results related to lexicalised N+N structures will be significant.

4.4.1 Criteria for the classification of lexicalised and non-lexicalised N+N structures

In Chapter 3 (Section 3.4.1) we surveyed different criteria for the identification of lexicalised N+N structures, as noted in Bauer (1978: 54). These criteria are based on phonological, morphological and semantic characteristics that nominal sequences may have. The application of grammatical rules to expressions in order to test their degree of lexicalisation has been developed by Barkema (1997) (cf. also Fraser 1970; on idioms, see Newmeyer 1974).

However, at this point, it is important to note that the application of grammatical criteria to N+N sequences does not result in a clear distinction between fully lexicalised and non-lexicalised constructions, since a continuum of lexicalisation exists in which some N+N structures are more lexicalised than others. In this respect, Barkema (1997: 54-55) distinguishes between different classes of lexicalised expressions depending on their level of compositionality. Thus, N+N sequences like *iron curtain* are non-compositional whereas *top hat* is a partly-compositional lexicalised expression.

From a phonological point of view, stress assignment proves inconsistent and is still a source of controversy among scholars (cf. Giegerich 2004; Aronoff & Fudeman 2005; Plag 2006; Plag *et al.* 2008; see also Chapter 3, Sections 3.1.2 and 3.4.1), and there seems to be no consistent answer to the problems it raises. For this reason, stress as a criterion has not been adopted in the current research. In addition to theoretical issues, a small-scale pilot study involving native speakers of English also revealed the inconsistency of stress assignment as a criterion, since native speakers tended to be somewhat inconsistent in this respect. The study itself was conducted with native speakers of American and British English, a total of 8 middle-aged individuals (4 males and 4 females) mostly with a university education. They were given a list of 50 nominal constructions (taken from the corpora of written English used in this research) and asked to indicate where the main stress fell. The use of the list avoided confusions regarding stress variations owing to features of discourse such as emphasis. Informants were required to indicate with a number 1 or 2 (left or right constituent) where they considered the main stress to have fallen in each N+N sequence. The table in Appendix IV shows the results for each informant. There is no agreement even with N+N sequences with high frequency in the language (e.g. *fire stations*, *heart attack*, *letter box*, *phone calls*)

and, most surprisingly, the results are uneven independently of the national variety of each informant.

This pilot study illustrates first of all that speakers of a language are not consciously aware of stress assignment in words or sequences of words. This implies that research based on examples of their own pronunciation would be a better option. In spite of the modest and in some ways imperfect nature of this preliminary study, the findings support the idea that stress assignment in English is in many ways still an unresolved issue and as such may not serve as a clear-cut criterion for lexicalisation. Another option would be to use a pronunciation dictionary, in which stress assignment would be more consistent, but for the present research this is not possible, given that most of the N+N sequences found in the corpora do not appear in dictionaries. For example, there is no entry for *room temperature* in the *Longman Pronunciation Dictionary*, an N+N sequence about which informants have also shown disagreement. For these reasons, stress assignment as a criterion for lexicalisation has been rejected.

From a morphological point of view, it has been pointed out in the previous chapter that compounds are characterised by the unbreakable cohesion of their component parts. As such, their component parts cannot enter individually into coordination with other elements, nor can they be individually modified by other elements, since they are lexemes acting together as a single unit (cf. Bauer 1998; Haspelmath 2002; Payne & Huddleston 2002). Hence, coordination and modification are two useful criteria to test whether N+N sequences belong to a lexical or to a syntactic category. As already discussed, these criteria are part of the different conditions that an N+N structure may fulfil in order to be considered more or less lexicalised. However, the fulfilment of one of them does not necessarily imply the

fulfilment of the other. In fact, there are cases of N+N sequences in the corpora which fulfil the criterion of modification but do not fulfil that of coordination.

(64) sports car [BROWN B9 L39],

(64a) *[mind sports] car

but

(64b) sports and race car

So, once again we see that lexicalisation is a continuum with some N+N structures more lexicalised than others, by which is meant that they fulfil all, some or only a few of the criteria used to characterise them.

From a semantic point of view, whereas fully syntactic N+N sequences are completely compositional (i.e., their meaning is the result of the sum of each of the meanings of their component parts), lexicalised N+N structures tend to have opaque meanings which often require recourse to a dictionary. As noted in the previous chapter (Section 3.4.1), the obscuration of lexicalised expressions is also a gradual process and may be caused by the addition or loss of specific meanings (cf. also Sauer 2000; Portero 2004). Once again, meaning as a criterion indicates that lexicalisation does not imply a binary distinction between lexicalised and non-lexicalised N+N structures.

Finally, to the previous criteria a new factor can be added, and has to do with the orthographic representation of N+N sequences. As already noted, N+N sequences are written separately but they can also be found hyphenated or as a single word. For the purposes of the present investigation, those expressions which are orthographically written as one single word, such as *butterfly*, have not been counted because from the point of view of morphology

they are full compounds. In spite of this, Appendix V gathers a compilation of N+N compounds whose members are still recognisable. Additionally, the distinction between hyphenated (e.g. *saw-horse* [BROWN K29 L161]) and separated N+N sequences (e.g. *room temperature* [BROWN J4 L161]) is considered as a condition for lexicalisation. Thus, hyphenation indicates that a given sequence is more lexicalised than a non-hyphenated sequence. In addition, there are instances in the corpora of N+N sequences which appear as two orthographic words or as hyphenated but which at the same time may be found written as one orthographic word nowadays.

(65)

Back-ache	Class room	Copy-right	Data bases
(FROWN G7 L64)	(FLOB J16 L82)	(FLOB G59 L160)	(FACMT97)
Fair grounds	Heart beat	Life style	Night club
(BROWN A26 L83)	(FROWN A28 L228)	(FLOB B7 L176)	(BROWN A16 L118)

This variation in the orthographic realisation of certain N+N sequences is thus another symptom of the gradient character of lexicalisation.

To summarise, there are four factors which are used in this research to indicate different degrees of lexicalisation of N+N sequences: modification, coordination, semantic obscuration, and orthographic representation. These criteria have been applied to the N+N sequences chosen from the corpora. Appendix III offers a compilation of these lexicalised N+N sequences. As can be seen, the symbols + and – indicate respectively whether each N+N sequence does or does not fulfil the conditions for lexicalisation. Thus, *post office* (BROWN K27 L159) receives + symbols for modification, coordination and semantic obscuration criteria, whereas for orthographic representation it receives a – sign, since it does not fulfil this criterion. Hence, *post office* is an almost fully lexicalised N+N sequence. On the other

hand, *tourist office* (LOB K22 L61) is almost non-lexicalised since it does only receive a positive answer to the modification criterion, which means that its components can be coordinated separately, the structure still being grammatical. Its meaning is fully compositional and it is written as two orthographic words.

4.4.2 General results

As displayed in Table 13, the number of more or less lexicalised N+N sequences is much lower than non-lexicalised ones found across all the corpora of written English.

<table>
<tr><td rowspan="2">NON-LEXICALISED N+N</td><td>7,060</td><td rowspan="4">7,466</td><td rowspan="4">TOTAL</td></tr>
<tr><td>94,56%</td></tr>
<tr><td rowspan="2">LEXICALISED N+N</td><td>406</td></tr>
<tr><td>5,44%</td></tr>
</table>

Table 13 Total distribution of lexicalised and non-lexicalised N+N structures in the corpora of written English

Furthermore, differences are also evident for each national variety and text category, and can also be seen over time. In what follows, an account of these differences is offered to illustrate the percentages of lexicalised and non-lexicalised N+N structures in each speech community and text category.

4.4.3 Text category

The preponderance in the use of non-lexicalised N+N sequences has been tested and confirmed in the previous table. The results according to text categories do not deviate from

this general view. However, it is worth looking at these differences more carefully. Table 14 illustrates the differences in each of the five chosen text categories, and includes their percentages according to frequency of use.

	Non-lexicalised N+N	Lexicalised N+N	TOTAL
Press: reportage	2,233	112	2,345
	95.22%	4.78%	31.41%
Science	1,562	30	1,592
	98.11%	1.88%	21.32%
Press: editorial	1,577	86	1,663
	94.83%	5.17%	22.27%
Fiction	730	113	843
	86.59%	13.40%	11.29%
Belles Lettres, Biographies, Memoirs	958	65	1,023
	93.65%	6.35%	13.69%

Table 14 Lexicalised vs. non-lexicalised N+N structures according to text category

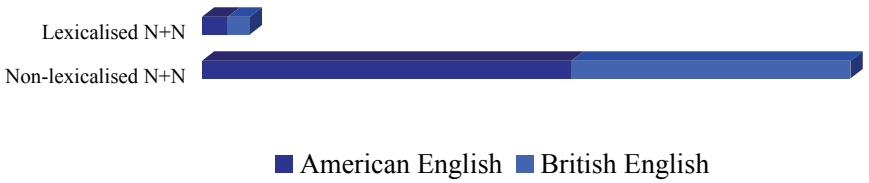
Fiction is revealed as the category with the most significant data; in spite of being the category for which the lowest number of N+N structures are found, representing only 11.29%

of the total number of N+N structures found for the corpora of written English, it has the highest proportion of lexicalised N+N structures. Hence, 13.40% of its N+N sequences are lexicalised, in contrast, for example, to Science, with only 1.88% of lexicalised N+N sequences.

4.4.4 Speech community

As became evident previously in this chapter, there are differences in the use of N+N structures between American and British English, with the former using a higher number of N+N sequences. Figures XXII and XXIII in this section will show that differences are also evident as far as the distinction between lexicalised and non-lexicalised N+N structures is concerned.

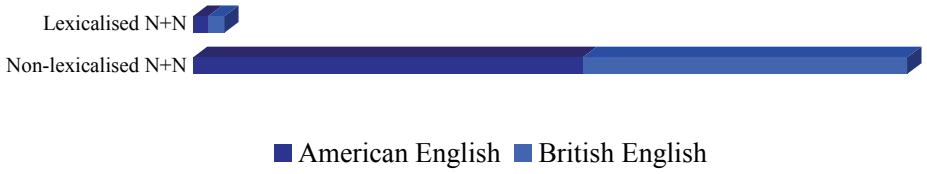
Figure XXII
Distribution of lexicalised and non-lexicalised N+N sequences in American and British English I



As previously mentioned, American English I shows a higher proportion of N+N structures. However, in the case of lexicalised N+N structures, British English I shows a higher number of examples, with 7.36% (108 tokens) of lexicalised N+N structures found against 6.53%

(126 tokens) of lexicalised N+N structures in American English I. For the second period, Figure XXIII illustrates the differences.

Figure XXIII
Distribution of lexicalised and non-lexicalised N+N sequences in American and British English II



Again, the rates of N+N structures for American English are higher than for British English. However, British English appears to be the speech community in which a higher proportion of lexicalised N+N structures are found (4.78%, 89 tokens, of lexicalised N+N structures, against 3.75%, 83 tokens, for American English).

4.4.5 Time period

What can be deduced from the previous figures in Section 4.4.4 is that the number of N+N structures in both American and British English has increased. However, this increase is not proportional to the number of lexicalised N+N structures found for each period of time; that is, the increase in lexicalised N+N structures has not been parallel to the increase in non-lexicalised N+N structures. Hence, whereas in American English I lexicalised N+N structures represent 6.53% of the total number of N+N sequences, in American English II their proportion of appearance is only 3.75%. British English undergoes a similar trajectory: whereas for British English I the proportion of appearance of lexicalised N+N structures is

7.36%, for British English II the percentage of appearance is only 4.78% of the total number of N+N structures found.

It is worth looking at the results in both periods according to each text category to see whether the same behaviour is evident.

Figure XXIV
Distribution of lexicalised N+N structures in American English I and II

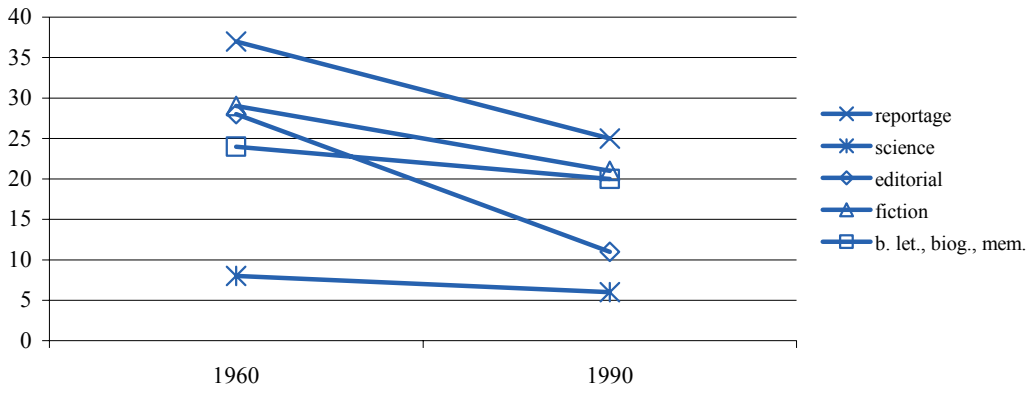
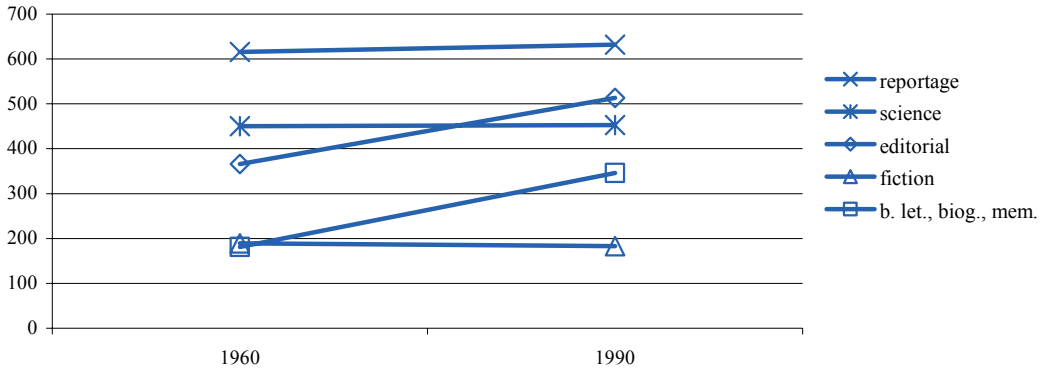


Figure XXIV represents the evolution of lexicalised N+N sequences in American English over 30 years according to the different text categories. As can be seen, there is a clear decrease in the number of lexicalised sequences used in American English, which is especially remarkable in Editorial and Reportage. However, in Science, the category which shows the lowest number of lexicalised N+N structures, there is only a slight decrease. The contrast is confirmed in Figure XXV, where the evolution of non-lexicalised N+N sequences in American English is represented.

Figure XXV
Distribution of non-lexicalised N+N structures in American English I and II



In contrast to the previous situation, American English undergoes a slight increase in all text categories in the use of non-lexicalised N+N structures. This implies that the general increase in the use of N+N structures in the time span of 30 years favours the use of non-lexicalised constructs as opposed to lexicalised forms. As was previously noted in the case of the general evolution of N+N sequences over time, only Fiction, the text category showing the lowest number of N+ N sequences, does not undergo an increase in the use of non-lexicalised N+N sequences.

The situation for British English is as shown in XXVI.

Figure XXVI
Distribution of lexicalised N+N structures in British English I and II

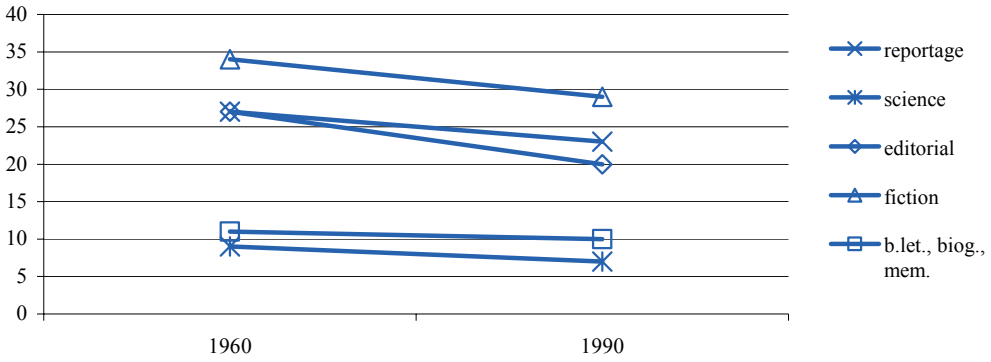
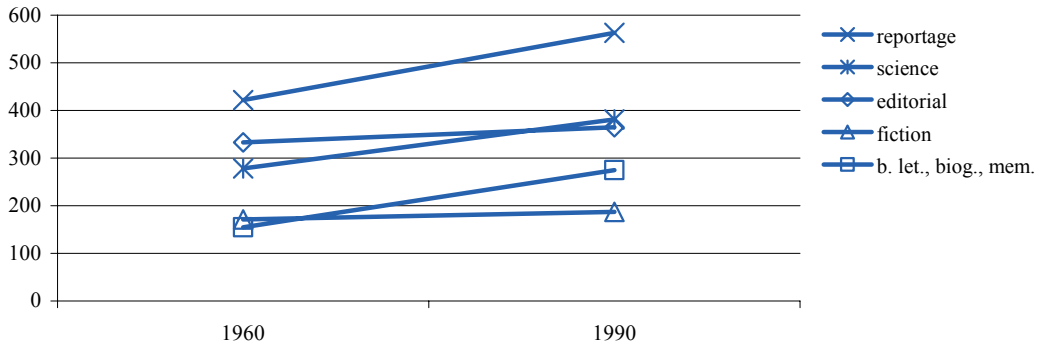


Figure XXVI shows the evolution in the use of lexicalised N+N sequences in British English from the 1960s to the 1990s. There is a general decrease in all text categories in spite of the increase undergone by all categories in the use of N+N structures in general. This situation is captured in Figure XXVII.

Figure XXVII
Distribution of non-lexicalised N+N structures in British English I and II



As can be seen, the decrease in the use of lexicalised N+N structures is compensated for in British English by an increase in the use of non-lexicalised N+N sequences in all text categories. This is especially so in Reportage and Science.

4.4.6 Mode

Differences in the use of lexicalised and non-lexicalised N+N structures can also be seen in spoken English. In order to observe these differences, a contrast is established between the corpora of written English II (FROWN and FLOB) and the corpora of spoken English from the same period (CSPAE and ICE-GB). Table 15 shows the main findings here.

	N+N structures	Non-lexicalised N+N structures		Lexicalised N+N structures	
Written American English II (FROWN)	2,210	2,127	96.24%	83	3.75%
Spoken American English (CSPAE)	948	919	96.94%	29	3.06%
Written British English II (FLOB)	1,860	1,771	95.22%	89	4.78%
Spoken British English (ICE-GB)	854	814	95.32%	40	4.68%

Table 15 Distribution of lexicalised and non-lexicalised N+N structures in written and spoken English

Differences between spoken and written English have already been noted in Section 4.3.4, and Table 15 reasserts the same differences as regards the process of lexicalisation. Figures

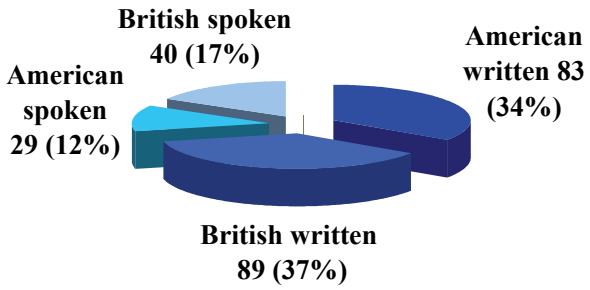
XXVIII and XXIX allow us to measure these differences according to each speech community.

Figure XXVIII
Distribution of lexicalised and non-lexicalised N+N sequences in written and spoken American English texts

Figure XXIX
Distribution of lexicalised and non-lexicalised N+N sequences in written and spoken British English texts

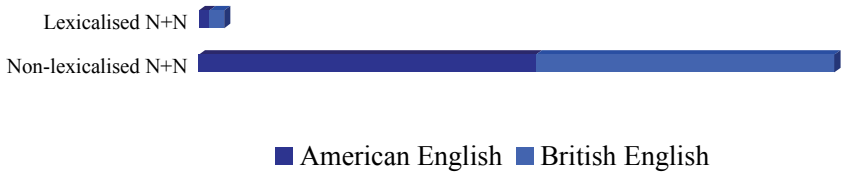
As can be seen, the rate of appearance of non-lexicalised N+N structures is definitely higher for both spoken and written English and also for both speech communities. However, in British English a more robust presence of lexicalised N+N structures in the analysed texts is observed than in American English. These differences according to speech communities are more clearly laid out in Figure XXX.

Figure XXX
Distribution of lexicalised N+N sequences according to speech community and mode



Written English texts represent the highest percentages of lexicalised N+N structures, due to the fact that they display twice the number of general N+N sequences found in spoken English. However, it is worth noting that for both modes, British English shows the highest percentages, with 37% and 17% of lexicalised N+N structures found, despite being the speech community for which a lower number of N+N sequences has in general been attested. This is exactly the same trend observed in the corpora of written English from the earlier period (BROWN and LOB corpora), which once again implies that British English favours a higher use of lexicalised N+N structures than American English in both its written and spoken samples.

Figure XXXI
Distribution of N+N sequences in American and British spoken English



As Figure XXXI shows, there are more examples of non-lexicalised N+N structures in American English than in British English.

To conclude, it should be noted that the distribution of lexicalised and non-lexicalised N+N structures in English shows the same behaviour in its written and spoken variants, both in the American and British English speech communities.

4.4.7 Summary

This section was devoted to the classification of lexicalised N+N structures found in the corpora, as well as their use according to text category, speech community and mode across a time span of 30 years. Several criteria have been employed to classify N+N structures on a continuum where some are more lexicalised than others. In spite of the gradient character of the status of lexicalisation, a distinction between lexicalised and non-lexicalised N+N structures has been made in order to measure the strength of the preference for the use of N+N sequences in the case of each variable. In this way it has been shown that although all categories favour the use of non-lexicalised N+N structures, there is a strong preference for

non-lexicalised N+N structures in non-narrative texts, whereas narrative genres opt for a higher number of N+N structures which are already established and settled in the language. With respect to speech communities, American English has shown preferences for non-lexicalised N+N structures, whereas British English shows a higher number of lexicalised N+N sequences. As for modes, there are behavioural parallels in the use of non-lexicalised and lexicalised N+N structures in written and spoken English. With regard to the time span analysed, there is a general decrease in the use of lexicalised N+N structures in both speech communities and also in all text categories, favouring an increase in the use of N+N structures which are not lexicalised for all speech communities and text categories. This situation implies that there is a tendency towards the use of newly coined N+N structures which are created in real-time in order to answer specific linguistic needs at a given moment. A graphic summary of the situation is laid out in Table 16. The minus signs represent those text categories and speech communities for which a lower number of N+N structures (whether lexicalised or non-lexicalised) is found, whereas the plus sign represents those text categories and speech communities for which more examples of N+N structures (whether lexicalised or non-lexicalised) are found.

	LEXICALISED N+N STRUCTURES	NON-LEXICALISED N+N STRUCTURES
BRITISH ENGLISH	+	-
AMERICAN ENGLISH	-	+
NARRATIVE TEXT CATEGORIES	+	-
NON-NARRATIVE TEXT CATEGORIES	-	+

Table 16 Distribution of lexicalised and non-lexicalised N+N structures according to speech community and text category

4.5 General discussion

The present corpus study has revealed that journalistic language (i.e. Press: reportage and Press: editorial in the corpora of written English) contains the highest number of nominal premodifiers, with more than a half of all instances belonging to those two text categories. Their frequent use extends to other genres, such as Science, and in the case of Fiction and Belles Lettres, Biographies, Memoirs increases over time. As noted in Algeo (2006: 86), the trend towards the use of nominal premodifiers in press as a concise method of presenting information is spreading through other genres, such as ordinary prose. The reasons for using these forms in press language are different from their use in the case of scientific discourse.

Noun modifiers in newspaper reportage allow us to make reference to previous, known information with the least number of words. Thus, N+N sequences create a compressed style and consequently help to save space, with space limitations as a specific characteristic of newspaper style. Example (66) may serve as an illustration.

(66)

> Most of the 2,000 or so *children* who have come into Bob Hutchins' life over the last 12 years have had one thing in common. They *have been missing*. As one of the Alameda County's top experts in *child abductions*...
> (FROWN A23 L6-9).

The journalist knows that the audience is already aware of the main topic of this item of news (i.e., children who have been missing) and consequently there is a use of the N+N structure *child abductions*, which undoubtedly saves space yet gives precise information. In spite of

this, N+N sequences must be carefully employed in order to avoid potential problems of semantic ambiguity. Hence, one cannot refer to *child abductions* without an introductory explanation such as the one offered in (66), otherwise the audience will not know what these abductions refer to (is that an abduction by a child? of a child? of various children?). As noted in Ferguson (1983), though N+N sequences are used very extensively in journalistic language, the audience is always in danger of not being able to retrieve previous contextual information to unveil their meaning. In fact, contextual information acquires a special importance in press language. For example, in the FROWN corpus Press: reportage excerpts taken for the current research, the Bill Clinton's first presidential campaign is a frequently mentioned topic. Given this contextual information, which is shared by the audience, there are many references to both Bill Clinton and to that campaign by means of N+N sequences, which help to save space and redundancies without any further need to explain yet again who Bill Clinton is and what that campaign is about.

(67)

campaign trail	campaign appearance
(FROWN A1 L41)	(FROWN A1 L117)
campaign stroll	campaign stop
(FROWN A1 L189)	(FROWN A5 L10)
Clinton passport file	Clinton campaign
(FROWN A1 L156)	(FROWN A1 L158)
Clinton-Gore campaign	Clinton campaign co-director
(FROWN A1 L223)	(FROWN A23 L123)

To conclude, the use of nominal premodifiers in journalistic discourse implies that the readers' access to information is faster and more direct, as this information is embedded in such compact structures. Also, the use of N+N sequences in journalistic language contributes to the concision and clarity which characterise this kind of discourse.

On the other hand, scientific language is understood as a sequence of steps which serve to build logical arguments. These steps establish logical-semantic relations such as causal relations, which, in Halliday's words, are seen as prototypical. Halliday (2006: 125) sees the clause as consisting of theme and rheme. Theme corresponds to the stable part and thus is typically construed as a noun. Since in scientific language the text progresses along a chain of reasoning, the theme becomes a summary of what has been previously said, and thus this previous material becomes into nominal groups.

(68a)

> (…) Infrared vibration-rotation lines have predominantly the Lorentz, or collision-broadened line shape (…). At very low gas pressures, the line shapes follow the Doppler profile, where the line width *depends* only on the *temperature*. (FROWN J02 L106-108)

(68b)

> In recent years measurements of Lorentz broadening coefficients and their *temperature dependence* have become more numerous. (FROWN J02 L129-130)

What was presented in (68a) by means of a clause (*the line width depends only on the temperature*) is given in (68b) by means of an N+N sequence (*temperature dependence*).

Thus, as noted in Varantola (1993), the grammar of science constructs a different kind of world view from what is typical of everyday discourse, one which is specialised and technical, which itself implies that access to it by a general audience would be far from easy. The use of technical lexicon and different grammatical constructions obscure the meaning of the concepts they convey. In this respect, Varantola (1993: 73) reminds us that many of the terms which are employed in scientific writing could not be interpreted without a "specialist-level extralinguistic knowledge." Halliday (2006) proposes seven areas which contribute to the difficulties of understanding scientific language:

(i) Interlocking definitions.

(ii) Technical taxonomies.

(iii) Special expressions.

(iv) Lexical density.

(v) Syntactic ambiguity.

(vi) Grammatical metaphor.

(vii) Semantic discontinuity.

Three of these (lexical density, syntactic ambiguity and grammatical metaphor) will be carefully explained below, since they are considered to be a result of the use of nouns as modifiers in the nominal groups of scientific texts.

Lexical density has to do with the number of lexical words that are used per clause. In informal spoken language, the lexical density tends to be low, around two lexical words per clause as noted by Halliday (2006: 168), whereas in formal language this proportion of lexical words per clause tends to be higher. In the case of scientific language, lexical density can be

even higher, with examples of up to 10 or 13 lexical words per clause as compared to other kinds of written language with four to six lexical words per clause (Halliday, 2006: 168-169). With such a high lexical density, these texts become difficult to read since they provide a lot of information in a short space. This is the case with the following nominal sequence.

(69) rat bone marrow transplant model (FLOB J17 L38-39)

Syntactic ambiguity has already been discussed in Chapter 3. As noted there, knowing the correct internal relations within nominal sequences is sometimes difficult. This is the case with example (70).

(70) Low-resolution band intensity measurements (FROWN J02 L54)

Various different interpretations of (70) are possible, thus,

(70a) [[[Low-resolution] [band intensity]] measurements]

with the meaning that there are some measurements performed on the intensity of the band, this intensity being of low resolution;

(70b) [[Low-resolution band] [intensity measurements]]

which means that there are some measurements of the intensity of a band, this band being of low resolution;

(70c) [[Low-resolution] [[band intensity] measurements]]

meaning that there are some measurements of band intensity, those measurements being of low resolution.

If all possible interpretations were combined in all combinations, we would obtain a large number of different meanings, some of which would clearly be more plausible than others (Halliday, 2006: 169-170).

As regards **grammatical metaphor**, this is a term used by Halliday to explain how scientific discourse is characterised by a nominal style as opposed to the clausal style of everyday speech. Grammatical metaphor can be explained in comparison to lexical metaphor, and Halliday (ibid.: 107) employs this figure.

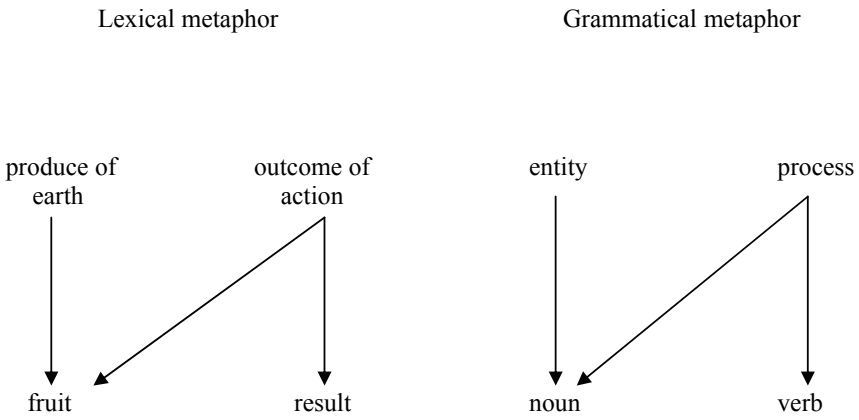


Figure XXXII Representation of lexical and grammatical metaphor as shown in Halliday (2006: 106)

Thus, in the case of lexical metaphor, the word *fruit* is used in a metaphorical sense if it is used as "the outcome of an action" instead of its prototypical meaning as "produce of the

earth." Likewise, in the case of grammatical metaphor, a process, usually represented by a verb, is used in a metaphorical sense when it is represented by a noun, which prototypically stands for entities. Halliday (2006: 104) points out that grammatical metaphor is the main characteristic of scientific discourse in English, whereby processes represented by verbs in everyday speech are now represented by nouns in scientific writing. As an illustration, examples (55a) and (55b) above, repeated here for convenience.

(55a) Prolonged *exposure* will result in rapid *deterioration* of the item

(55b) If the item is *exposed* for long it will rapidly *deteriorate*

These examples show how the verbs *exposed* and *deteriorate* in normal speech have been transformed into the nouns *exposure* and *deterioration*. As a result, there is a great condensation of lexical material inside nominal groups, which appears to be a typical grammatical tool in scientific language. In this connection, Halliday (2006: 108) distinguishes among three different kinds of grammatical metaphor in English scientific language:

(i) When the resulting noun functions as head of the NP (as in the case of *deterioration*).

(ii) When the resulting item is not a noun and it does not even work inside the nominal group (in the case of forms like *if* corresponding to a verb group in everyday discourse: *if* < *will result*). This is a clear illustration of the fact that the process of grammatical metaphor cannot be entirely classified as a process of nominalisation.

(iii) When the noun resulting from grammatical metaphor does not function as head of the NP but is still inside the nominal group (this is the case of modifying nouns such as *computer* in *computer experiments*).

So far this has been an explanation of the situation of English as a language of science and the main characteristics which define it, among which nominal style and N+N structures play an important role. N+N structures provide scientific texts with a normative vision of the statements they stand for (cf. Varantola 1993); they provide a sense of authority as well as more stability and permanence over time. As a result, scientific terminology becomes standardised. Nominal style and N+N structures generate a scientific system (cf. Halliday 2006); they create theories which remain over time.

The corpora used in this research have allowed us to work on the evolution of N+N structures from the perspective of different speech communities, that is, American vs. British English. Findings reveal that there are differences in the use of nominal modifiers. Thus, American English is the national variety in which a higher number of nominal modifiers are used in general and a higher number of non-lexicalised noun modifiers are used in particular. On the contrary, British English exhibits a lower number of nominal modifiers and prefers to resort to those N+N structures which are more conventionalised, that is, those N+N sequences which are already settled in the language. For that reason, we may assert that according to these findings American English seems to be more innovative as a speech community than British English, which is relatively conservative and reluctant to use new nominal constructs.

What these findings may entail is that in the process of the creation of new vocabulary, American English takes the lead. In this respect, Algeo (1991) refers to six ways in which

new words are created[28], one of them being *combining*, to which *compounding* and *derivation* belong. In fact, the process of giving new names to things and expressing new experiences through the combination of two words has been very productive in American English. As noted in Kövecses (2000), this is especially obvious in words created to name plants (e.g. *eggplant*), animals (e.g. *rattlesnake*), in show business (e.g. *soap opera*), in the world of business (e.g. *bank account*), and sports (e.g. *baseball*). Additionally, "these originally American English examples reflect the American talent and liking for linguistic innovations" (Kövecses, 2000: 279). Hundt (1997: 135) also notes the innovative character of American English as opposed to British English when observing that: "[I]n terms of ongoing linguistic change, American English is often the most advanced variety." In her work, Hundt in fact notes that evidence from corpora has demonstrated that American English is more innovative than British English and she refers to differences in morphology (e.g. introduction of irregular participle *proven*, the weakening of the semantic restrictions on the use of the *s*-genitive, the growing use of contractions), syntax (e.g. decrease of *which*, *going to*, *must*/*have to*), and lexico-grammar (e.g. complementation patterns with *protest*, *different* and a variety of prepositions: *to, than, from*). As a result, she points out that American English is more advanced in terms of ongoing morphological and syntactic changes. The findings from the present corpus research may be added to this as more evidence of the innovative character of American English.

Differences between speech communities can also be detected as regards the number of noun premodifiers that are attached to the head noun in a noun phrase. As noted in Algeo (2006: 89), multiple noun adjuncts are typical of American use, in spite of also being present in British English. Indeed, our own findings here reveal that the number of multiple noun

[28] As noted in Algeo (1991), the six ways in which new words are created are: creating, borrowing, combining, shortening, blending, and shifting. Combining shows the highest productivity, with creating the least productive.

modifiers (e.g. *liver cord cells* [BROWN J15 L123-124]) is higher for the American written corpora than for the British corpora.

SPEECH COMMUNITIES	N+N STRUCTURES	MULTIPLE N+N	%
BROWN	1,929	348	18.04%
FROWN	2,210	410	18.55%
American English	4,139	758	18.31%
LOB	1,467	183	12.47%
FLOB	1,860	275	14.78%
British English	3,267	458	14.01%

Table 17 Total number of N+N structures with multiple noun modifiers in the corpora of written English

The application of the *chi-square* test (Preacher 2001) to the previous results has proven the distribution to be significant, thus:

(i) Chi-square = 22.842

(ii) Degrees of freedom = 3

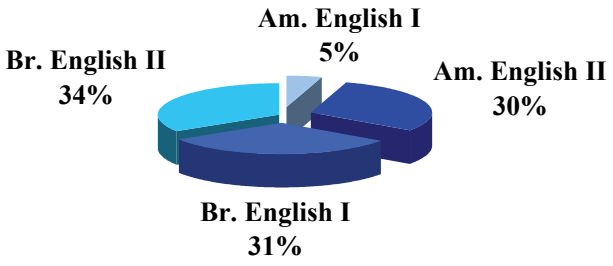
(iii) *p* value = 0.00004356

Whereas the American speech community uses 18% (758) of multiple nominal premodifiers, British English uses only 14% (458).

Further differences between both speech communities can also be detected in the use of plural forms in modifying nouns (e.g. *studies department*, *sports car*, *trades union*). As

discussed in Chapter 3 (Section 3.1.3), nominal modifiers, because of their restrictive function, tend to lose their ability to be inflected and thus usually appear in the singular form (e.g. *laboratory animals* [FROWN J15 L22]). However, as noted in Quirk *et al.* (1985: 1334), the plural attributive construction (e.g. *workers party* [FLOB A1 L45]) is on the increase, and against the general trend, is increasing particularly in British English, where it is in fact more common than in American English (see also Johansson, 1979: 213). The corpora in the present research support this. There are a total of 69 N+N sequences with their first element in plural form[29]. The distribution among text categories is as shown in figure XXXIII.

Figure XXXIII
Distribution of N+N sequences with regular plural noun modifiers in the corpora of written English



Again, the application of *chi-square* test (Preacher 2001) proves the results to be significant:

(i) Chi-square = 13.667

(ii) Degrees of freedom = 1

[29] Only regular plurals were counted. In any case, the number of irregular plurals found in the corpora of written English for the first element is insignificant: *children program* (BROWN A2 L177), *women slaves* (LOB G54 L120), and *women leaders* (FROWN G8 L168). For a complete list of N+N sequences with plural premodifying nouns see Appendix VI.

(iii) p value = 0.00021826

American English I only shows 5% (7) of such premodifying nouns in the plural form, whereas American English II represents 30% (51) of the total N+N sequences found. However, the difference over time is less notable as in the case of British English, which, from 31% (36) of regular plural noun modifiers in the first period increases only to 34% in the second (53). These findings, though not based on very extensive data, suggest that there is indeed an increase in the use of plural noun modifiers, which has been striking in American English and more subtle in British English. These findings also suggest a possible influence of British on American English.

From a diachronic perspective, the trend in the use of nominal premodifiers in contemporary English is characterised by a move towards stability in their use in all genres and speech communities. Most of the text categories analysed experience a slight increase in the use of N+N sequences; similarly, there is an increase in both speech communities. However, after the great explosion in the use of N+N sequences, which took place from the end of the first half of the 20th century (cf. Biber & Clark 2002), this increase is less pronounced. In this connection, the 1960s is the moment at which there is a transition from a society characterised by strong hierarchical conventions and rigid rules into a more tolerant and open society, in which hierarchies and rules are relaxed. As noted in Mair (1997), this change is seen as a current of *informalisation* affecting society which has its linguistic correlate in the change of stylistic conventions. According to Mair (1997: 205) there is a colloquialisation of the norms of written discourse. This colloquialisation can be produced in two different ways:

(i) Through the relation between speech and writing: the more or less unconscious carrying over of conversational features into writing.

(ii) Through no relation between speech and writing: the conscious deployment of selected stylistic markers in order to reduce the degree of formality of a text.

Hence, given the results derived from the corpus research just presented in the previous chapter, it could be thought that the trend in the use of N+N sequences may belong to the second kind of *colloquialisation* of written discourse, in which there is no relation between speech and writing, but rather the need to reduce the formality of writing, as aptly pointed out by Mair. Needless to say, this *colloquialisation* of written discourse affects text categories such as press. In the case of science, N+N structures are used with other purposes and consequently are not a result of such a *colloquialisation*.

Differences between written and spoken discourse have been observed through the contrast established between the FROWN and FLOB corpora of written English and the ICE-GB and CSPAE corpora of spoken English. There is a clear tendency in spoken language not to use as many N+N structures as in written language. In fact, the number of N+N sequences found in the corpora of spoken English was half that found in the written one. This is probably due to the features which characterise spoken language. As noted in Halliday (1989: 31), spoken language is grammatically simpler than written language. This implies that it has fewer subordinate and complement clauses, fewer attributive adjectives and, on the other hand, more active verbs than written language. It also shows a tendency towards more verb-based phrases and fewer nominalisations. As a result, it is expected that the number of N+N sequences is lower than in written language, since the use of nouns in both premodifying and head position is reduced relative to written language.

In addition, spoken language is lexically less dense than written language, and as a consequence it has proportionally more grammatical than lexical words. What is more, spoken language is also characterised by a lower type-token ratio; there is a lot of repetition of lexical material, and thus many tokens of the same type are used. Clearly, this feature might have a consequence in the kind of N+N structures that are used in spoken language. In the corpora of spoken American English, for example, the noun *faculty* is used as N1 in combination with a different noun 45 times, and *student* is combined 34 times with an N2[30].

The final part of this chapter has been devoted to investigating the process of lexicalisation that some N+N structures undergo. For that purpose, several criteria have been applied to the N+N structures found in the corpora of written English, namely, coordination, modification, semantic specialisation, and orthographic realisation. The findings show that the use of lexicalised N+N sequences in both speech communities and also in all text categories is minor as compared to the use of non-lexicalised N+N structures. However, some results need highlighting. Thus, it is noteworthy that narrative text categories and also the British variety show a stronger preference for lexicalised N+N sequences than their non-narrative and American counterparts respectively. The corpus analysis has also demonstrated that this last assumption extends also to spoken language.

These results emphasise the innovative character of the American English speech community (as also supported in Hundt 1997) with a clear preference for non-lexicalised N+N structures, that is, those sequences of nouns which may be used to serve a specific purpose at a given moment in time and may not be used again in the future. The stream of innovation seems to affect British English in that the number of lexicalised N+N sequences decreases as time goes by, favouring the use of non-lexicalised N+N structures in this

[30] The N2s which have been counted always represent different types.

traditionally more conservative national variety. Likewise, the situation as regards text categories is one in which more innovative non-narrative genres and more conservative narrative genres can be distinguished. However, the findings discussed in Section 4.4.5 indicate that again there seems to be an influence from non-narrative genres on narrative genres for both speech communities, since there is a decrease in the use of lexicalised N+N structures which is compensated for by an increase in the use of non-lexicalised N+N structures in narrative genres.

5 SUMMARY AND CONCLUSIONS

This dissertation was conceived of as a comprehensive addition to the existing literature on nouns used as modifiers. Its starting point was the assertion that N+N sequences are syntactic constructs used to fill a gap for which there is no morphological item. Some of them may undergo a process of lexicalisation, which implies that they become part of morphology and consequently help to increase the lexicon of the language. For that reason, attention was given to the evolution and use of N+N sequences when they are syntactic constructs and thus when N1 functions as a modifier of N2. Given that nouns prototypically function as the head of noun phrases, the question which arises is how they behave when used in a place other than the usual one, and also what are the consequences of this use. What follows is a summary of this dissertation, maintaining the original order of the chapters.

Chapter 2 gave a brief account of the structure of the noun phrase. This account is based on the idea that constituents in an NP are built up of a continuous and recursive sequence of items, and that they may be studied from the point of view of their form and function. As a result, the discussion here focused on the definition, function and patterns of noun phrases as well as the modifiers inside them. Special attention was also paid to premodification.

Accordingly, Section 2.1 offered an account of the different approaches that grammars have made to noun phrases. In Section 2.1.1 different definitions of the noun phrase according to several perspectives were described, and served to conclude that noun phrases may thus be defined in terms of their constituent parts (head and dependents), their dependency relations (modifiers depend on the head), or their order relations (modifiers may precede or succeed the head). Earlier approaches to the structure of the NP, such as Jespersen (1976 [1914]) and Kruisinga (1932 [1909]), emphasised the idea of the NP as a combination of items which

form a sense unit or a syntactic group. Later, Hockett (1958) referred to the concepts of head and attribute as constituents of the NP. Within the context of Generative Grammar (cf. Jackendoff 1977) X-bar theory viewed phrases as the product of syntactic rules which are context-free, and made use of lexical categories as the starting point of projection paths. Within Functional Grammar, the term *nominal group* was used instead of *noun phrase* (cf. Halliday 1985); it was understood as an expansion of a word and was described in terms of its function in language use. Cognitive Grammar offered a new perspective on the definition of noun phrases in terms of the categories and function of their component parts. Componentiality, which was a factor of distinction in the previous approaches, is nowadays made less use of, and a symbolic approach is generally preferred. The determiner is now considered to be the head of the noun phrase, whereas the noun is the complement (cf. Taylor 2002).

Section 2.1.2 dealt with the syntactic function of noun phrases, which prototypically operate as subject, object or predicative complement in clause structure, as well as complements in prepositional phrases. Furthermore, the category *nominal* (cf. Payne & Huddleston 2002) was understood as an intermediate category between noun and noun phrase, and can be head of a noun phrase but also a pre-head dependent (e.g. *these* ***commission chairman*** *proposals*).

Section 2.1.3 was devoted to explaining the structural patterns that noun phrases display. There is a head and the rest of the components which are placed around the head to specify its meaning and function. Its structure is also characterised by being recursive, since a number of dependents (whether internal or external) can be added to both its right and left sides.

Finally, Section 2.1.4 discussed noun phrases as means for style, not only because they provide a static character to the concepts they convey, but also because they function as encoders of already known information.

Section 2.2 focused on premodifiers which, in spite of being optional elements, provide the noun phrase with features that help to identify, classify and define the head noun. Premodifiers are also characterised by the possibility of being defined in terms of postmodification, in spite of the obvious loss of explicitness that they bring about.

Section 2.2.1 dealt with the component parts of premodification. The premodifying position, it was observed, is often filled with adjectives but is also commonly filled with participles and nouns; other less frequent types are genitives, phrases and sentences.

Section 2.2.2 discussed the order of premodifiers and how this order may vary according to the informative aims of the speaker. Since there are cases of multiple modification with a few modifying elements, this may imply that there are different combinations, such as coordination, which was the concern of Section 2.2.3. Although coordination usually occurs with members of the same category, there are in fact many examples of coordinated premodifiers belonging to different categories. There is, indeed, a debate about the fuzziness of the boundaries between categories, and this is analysed in detail in the following chapter. Other issues in relation to the possible combinations of premodification include the distinction between stacked modification and submodification.

Section 2.3 discussed the role of premodification as opposed to postmodification, given that there is always a possibility of making a choice between one or the other. After an overview of previous research on the issue in Section 2.3.1, in Section 2.3.2 it was asserted that contextual information contributes to this choice; when there is previous contextual

information premodification is preferred. As a result, premodification performs a different communicative function than postmodification.

Section 2.3.3 dealt with the pragmatic function of premodification, which also distinguishes it from postmodification. Premodifiers shorten the noun phrases into which they are inserted.

Chapter 3 focused on nouns as modifiers and provided a thorough analysis of their characteristics. Section 3.1 dealt with the definition of nominal modifiers as either complements or adjuncts and as either restrictive or non-restrictive modifiers, and related this to the order of premodifiers in noun phrase structure and to the distinction between nouns and adjectives. The phonological and morphological features which characterise nouns as modifiers were explained in detail in the subsequent sections.

Hence, Section 3.1.2 dealt with the variability of stress patterns which characterises nominal modifiers. In fact, N+N sequences have often been used to argue against (cf. Olsen 2000a) or in favour of (cf. Payne & Huddleston 2002; Giegerich 2004) the distinction between syntactic phrases and compounds. These different views were also extensively surveyed, as were the reasons proposed by others for this variability. Plag (2006), for example, resorted to a combination of structural, semantic and analogical features as an explanation for such variability of stress patterns. A further contribution by Plag *et al.* (2008) proposed a hypothesis in which the frequency of appearance of N+N sequences determines their stress. Thus, N+N sequences with a high frequency of appearance show less variability of stress patterns than those which are less frequent.

Section 3.1.3 dealt with the morphological properties of nouns as modifiers. First of all, nouns as modifiers lose their ability to be inflected and thus they lack plural marking. Possible reasons for this were mentioned in this section. For example, Koptjevskaja-Tamm &

Rosenbach (2005; cited in Rosenbach 2007), on the basis of web-based analysis, identified reduced referentiality as the basis for this lack of plural marking. Also, Quirk *et al.* (1985) pointed out that plural modifying nouns are on the increase, an assertion which was empirically tested in Chapter 4 of this dissertation. In connection with this, Taylor (2000) considered that plural modifying nouns are probably acceptable because they have acquired a semantic connotation that is lacking in the singular form. Conversely, N+N sequences are frequently made from irregular plural forms since, as pointed out by Pinker (1994), irregular plurals are unusual and have to be stored in the mental lexicon as roots or stems, as opposed to regular plurals, which are generated by a rule and thus are words assembled with an inflectional plural.

Section 3.1.4 suggested several reasons for the use of N+N sequences, especially given that there are other syntactic resources such as clauses and postmodifying phrases which may convey the same meaning as N+N structures. The juxtaposition of words, then, is a way of presenting information in a compacted manner, and in this section such juxtaposition was related to the idea of *economic motivation* (cf. Haiman 1985). Also, the possibility for recursiveness that N+N sequences display allows the creation of compact packages of information. Speakers resort to this if previous contextual information is available to interlocutors. Finally, the ability of speakers to predict available information is another factor which favours the use of N+N sequences. Factors such as the distance from last mention, the recent mention of other potential referents, the semantic information from within the clause, and the thematic information from the preceding discourse (cf. Givón 1989) have also been mentioned in the literature as also affecting the accessibility to the concept.

Section 3.2 provided a brief overview of earlier analyses of N+N structures during the latter part of the 20th century. Three different stages were distinguished. The different

perspectives that authors bring to the study of N+N sequences are simply a consequence of the heterogeneity which characterises N+N structures. As for the suggested first stage, N+N sequences were considered morphological items. Thus, Li (1971) and Warren (1978) viewed structures of this kind as compounds which subcategorise the referents of nouns. Likewise, meaning relations were an object of study by Bybee (1985), who examined the differences between lexical and syntactic compounds based on the predictability of meaning. Levi (1978), on the other hand, took Transformational Grammar as her approach, and argued that N+N sequences are naming devices which are generated from earlier underlying sentence structures.

The putative second stage comprised the decade of the 1990s, and was characterised by the interest shown in N+N structures by scholars working in textual genre studies and sociolinguistics (cf. Raumolin-Brunberg 1991; Jucker 1992). At this point, the debate regarding the status of N+N sequences as syntactic or morphological devices (cf. Bauer 1998), which was to be long and laborious, began.

The final stage, characterised by an interest in measuring the increasing use of N+N sequences, can be seen in works such as Biber & Clark (2002) and Rosenbach (2005), the latter claiming that animacy has an important role in this increase. Benczes (2006) offered an approach to the semantics of metaphorical and metonymical N+N combinations, whereas the debate regarding their status was dealt with in the work of Giegerich (2004) and Plag (2006) on the variability of stress patterns.

Section 3.3 discussed recursiveness as a means of juxtaposing nouns as modifiers in a chain which is limited by psychological and stylistic constraints. This juxtaposition implies a reduction in explicitness which may cause ambiguity. Such ambiguity was analysed in this section from three different perspectives: syntactic, semantic and categorial.

Thus, in Section 3.3.1 it was noted that the relations among the internal elements of a sequence of nouns may give rise to ambiguous bracketing options (e.g. is a *bank insurance system* a system of insurances by a given bank or a system of bank insurances in general?).

In Section 3.3.2 it was claimed that, from a semantic perspective, noun combinations can give rise to ambiguous relational meaning. There are unique composite meanings that differ from the sum total of the component parts, often resulting in metaphorical meanings (e.g. *snail mail*).

Finally, in Section 3.3.3 it was noted that, in spite of fulfilling the function which is prototypically attributed to adjectives, nouns are still nouns. However, some of them may be subject to a gradient process of conversion into adjectives (e.g. *key area*) and as a result the distinction between category and function may become blurred.

At various points in Chapter 3 the reader was made aware that the question of the boundary between syntax and morphology in what concerns the status of N+N sequences is a source of debate. The importance of this is such that a comprehensive section dealing with this topic was indispensable. Accordingly, in Section 3.4 different features, such as the criteria to define N+N structures and the processes of institutionalisation (idiomatisation and lexicalisation), were considered at length.

Section 3.4.1 then discussed the criteria used for the definition of the status of N+N sequences, which may be of phonological, morphological or semantic nature. As for the first of these, the problems associated with phonology, owing to the variability and inconsistency of stress patterns in N+N sequences, have already been described. Regarding morphology, the existence of a compound would imply that both of its component parts act as a single unit and thus cannot enter into modification and coordination individually. Finally, from a semantic perspective, there are differences in the degrees of specialisation that an N+N sequence may

acquire, from being fully compositional to being fully encrypted. Thus, for compounds, their meaning cannot be directly inferred from the sum of the individual meanings of each of their component parts. Each of these criteria entails some problems, exceptions and inconsistencies, which were also considered in these sections. As a result, it was decided in this dissertation to assume that the distinction between syntax and morphology in N+N structures is a question of gradience, which was the concern of Section 3.4.2, in which an overview of the process of institutionalisation was given.

With this in mind, Section 3.4.2.1 dealt with a detailed characterisation of compounding. This process was defined according to the relationship between the component parts, in which the first element designates the reference of the second, which at the same time works as head of the compound. It was also shown that the status as head of the compound is reflected in the principle of *Feature Percolation* (cf. Haspelmath 2002; Plag 2003), whereby the compound inherits the features of the head, and which can be observed, for example, in the use of plural forms (e.g. *pocket mouse* > *pocket mice*). Further, it was explained that the relationships between the elements in compounds can also alter their meaning; as a consequence, it is context and our knowledge of the world that help in determining those relations. Finally, Section 3.4.2.1 also discussed the different classifications of compounds that various scholars have made from a semantic perspective (cf. Warren 1978; Carstairs McCarthy 1992) and from a syntactic perspective (cf. Lees 1960; Levi 1978; Quirk *et al.* 1985).

Given our initial assumption that N+N structures are syntactic in nature, Section 3.4.2.2 discussed the processes of institutionalisation and lexicalisation, whereby certain N+N sequences start being widely accepted by a community of speakers and later may become idiosyncratic. It was also highlighted that, depending on different idiosyncratic properties,

lexicalisation can be of different types. Likewise, the gradual character of lexicalisation, in which different degrees can be distinguished (i.e. slight lexicalisation, medium lexicalisation, and total obscuration), was mentioned.

The section devoted to the boundaries between syntax and morphology ended with some concluding remarks on the question: can N+N structures be considered as a method of word formation? Only a preliminary answer was given, since the empirical research on lexicalisation carried out in Chapter 4 was intended to be more conclusive on this issue. It was asserted that N+N structures do undergo lexicalisation, by which some of them become lexical items in a gradual process.

Section 3.5 was devoted to comparing nominal modifiers to other kinds of pre- and postmodifiers such as genitive phrases, adjectives, prepositional phrases and relative clauses. This comparison was justified by the belief that there are different reasons supporting the choice of each dependent. Hence, in premodifying position, the fuzziness between genitives and nouns as modifiers was a matter of discussion in the work by Rosenbach (2007) on the variation between determiner genitives and noun modifiers in English. Also, Taylor (2000) argued that there is a continuum between nouns and genitive modifiers based on degrees of animacy and the referentiality of N+N sequences. As for adjectives, it was shown that nouns as modifiers tend to be restrictive whereas adjectives tend to be non-restrictive.

As for the postmodifying position, N+N sequences have been compared to relative clauses and prepositional phrases and it has been asserted that differences lie in the utility of N+N sequences of communicating information efficiently and economically as well as the effect they have on the audience, since N+N sequences generate more permanent and specific messages.

Chapter 4 was the empirical research complementing the previous chapter and explained the evolution and use of N+N structures in Present Day English. Accordingly, Section 4.1 presented the main hypothesis from the perspective of four different variables: text category, speech community, time period and mode. N+N sequences are constructs which are generated in the syntax to fill a gap for which there is no morphological item. However, some N+N structures undoubtedly contribute to the expansion of the lexicon in English by becoming morphological items in a gradual process of lexicalisation. Hence, from the point of view of text category, it was hypothesised that N+N structures are differently employed depending on the genre and that each text category may employ them with a different goal. Also, a comparative study of ongoing change in American and British English was offered. The idea was that the use of N+N sequences and their morphosyntactic patterns would be different in these speech communities. As regards time, changes in society over the course of the time span chosen (1960s to 1990s) may have a corollary in changes in the way N+N structures are used. Finally, the fourth and last variable, mode, was chosen on the assumption that there might be differences in the way N+N sequences are used in spoken and written discourse.

In order to test these hypotheses, six computerised corpora of written and spoken English were employed (BROWN/LOB, FROWN/FLOB, CSPAE and ICE-GB[31]). As for the corpora of written English, these were four matching corpora which allowed working on three different variables: national variety (British vs. American English), time period (1960s vs. 1990s) and text category (narrative vs. non narrative genres). As far as the CSPAE and ICE-GB are concerned, these are two corpora belonging to spoken American and British English

[31] References for these corpora can be found in Chapter 4, Section 4.2.

respectively, which made possible a comparison between them and the written American and British English corpora (FROWN and FLOB) from the same period (the 1990s).

Section 4.2.3 was devoted to the sampling of texts. Five different text categories were chosen from the corpora of written English. These were Press: reportage, Press: editorial, Science, Fiction, and Belles Lettres, Biographies, Memoirs. All were grouped and subdivided under different labels according to Biber's (1988) linguistic dimensions, the distinction between narrative and non-narrative genres being the main and foremost. With regard to the corpora of spoken English, the selection of texts was random since, as noted in Biber (1988: 161), there is no dimension which can make an absolute distinction between written and spoken language.

As for the number of texts to be analysed, a pilot study was carried out in an earlier research to test how frequent N+N sequences are in the language and thus to decide on the number of words that needed to be drawn from the corpora for analysis. The pilot study revealed that the frequency with which N+N structures appear in texts is high, and as a result it was decided that the number of words which would be manually scanned would be 600,000 words (100,000 words per corpus).

Section 4.2.4 described the methodology used in this investigation. Some restrictions were applied and as a result some constructions which were not considered to be prototypical N+N sequences were omitted. This is the case with compound structures such as ***full-length*** *sequence*, or measure (e.g. ***20 year*** *age*) and temporal expressions (e.g. ***Monday*** *morning*). An especially problematical issue was that of forms with *–ing* deriving from verbs. Two criteria were applied here, depending on their status and level of institutionalisation. Thus, constructs like *waiting list* were omitted, whereas examples like *Bible reading*, were included, since the *–ing* form is a gerundial noun (cf. Payne & Huddleston, 2002: 81-82) which functions as head

of an NP. Finally, abbreviations and acronyms were also included since, as Bauer & Huddleston (2002: 1632-1634) noted, they behave grammatically like ordinary nouns.

Section 4.3 gave an overview of the data according to the four different variables under discussion. Thus, as far as text category was concerned, non-narrative genres were found to contain more N+N structures than narrative ones. As concerns the speech community, American English used a higher proportion of N+N structures than British English. Within each speech community, non-narrative genres were also those which showed a higher proportion of N+N sequences. The time span of thirty years between the 1960s and the 1990s showed that there was an increase in the number of N+N sequences used in both speech communities and also in narrative and non-narrative genres. Finally, from the perspective of mode, the corpus study revealed that the number of N+N sequences used in written language was notably superior to that used in spoken English.

The corpus study on the evolution and use of N+N sequences thus indicated that these sequences of nouns are on the rise nowadays and as such it is more necessary than ever to examine their status. For that reason, a study on lexicalisation was carried out in Section 4.4. First of all, several criteria for lexicalisation were established. These were previously surveyed in Chapter 3 (Section 3.4.1) and are based on the morphological, semantic, and orthographic characteristics that nominal sequences may have. A further criterion of phonological nature was discarded since it proved inconsistent and indeed is still a source of controversy among scholars (see Chapter 3, Sections 3.1.2 and 3.4.1); also, a small-scale experiment with several native speakers of English revealed further inconsistencies as regards the use of stress in N+N sequences, which supported the decision of rejecting this criterion.

As a result, the criteria used were morphological (in a morphological word no components can enter into modification and coordination relations individually), semantic

(the meaning of morphological compounds is idiosyncratic as opposed to the compositional meaning of syntactic constructs), and orthographic (compounds tend to be written as one orthographic word or hyphenated as opposed to syntactic N+N sequences which are written as two orthographic words). These criteria were applied to the samples taken from the corpora, and Section 4.4.2 presented the general results. According to text category, Fiction was the category which showed the proportionally highest number of lexicalised N+N structures. With respect to speech community, British English showed a higher proportion of lexicalised N+N structures. As far as the diachronic evolution was concerned, there was a decrease in the use of lexicalised N+N sequences which was compensated by an increase in the use of non-lexicalised N+N structures. Finally, the contrast between spoken and written texts revealed that written texts presented the highest percentages of lexicalised N+N sequences; this was itself a consequence of the fact that they displayed twice the number of N+N sequences in general found in spoken English.

The corpus study carried out in Chapter 4 gives empirical evidence for the evolution and use of N+N sequences in Present Day English. It was demonstrated that N+N sequences vary in their frequency and status depending on variables such as text category, speech community, time period, and mode. Thus, it was revealed that journalistic language (i.e., Press: reportage and Press: editorial) contains the highest number of nominal premodifiers. Their use is also noteworthy in Science, whereas in narrative genres it is increasing over time. Chapter 4 also pointed out some reasons which may explain why this is so, and pointed to concision in the case of Press, since N+N sequences provide information in a compact way, which implies a considerable spatial reduction. As was also shown in these cases, previous contextual information is of vital importance for the understanding of such compact packages of information. On the other hand, N+N sequences are also widely used in scientific language

as a result of the fact that scientific language is characterised by being more nominal; that is, apart from being lexically denser, it also employs many nouns, and nominal style provides a standardisation of its terminology. On the other hand, narrative genres have also undergone an increase in the number of N+N sequences used. Reasons for this were also suggested, including the tendency of narrative language to imitate language as it is used in real life contexts.

Chapter 4 was also devoted to a comparison of the use of N+N sequences in American and British English, and concluded that American English shows a stronger preference for nominal premodifiers than British English. This preference became more evident when the criteria for lexicalisation were applied to N+N sequences. American English showed a preference for non-lexicalised N+N structures, whereas British English proved more conservative, being more reluctant to use new nominal constructs and preferring to resort to those lexicalised N+N sequences already familiar. Thus, it was concluded that American English is more innovative than British English, being the variety in which a higher number of nominal modifiers are used in general and a higher number of non-lexicalised noun modifiers are used in particular. This claim as to the innovative character of American English is also supported by Hundt (1997) and Kövecses (2000), based on the study of other features of the language. The corpus study here also revealed that differences between speech communities were present in the form and quantity of the nominal premodifiers used. American English showed a higher proportion of multiple noun modifiers than British English. Conversely, British English showed a more frequent use of plural noun modifiers. In relation to this, a further potential influence of one speech community over the other may be perceived. Thus, from a diachronic point of view, American English has undergone an

increase in the use of plural noun modifiers, and this is probably influenced by the more generalised use of these forms in British English.

The study of the evolution of N+N sequences over time also showed that there is a tendency towards a certain stability in the use of nominal premodifiers. Hence, after a great explosion in the use of nominal modifiers as attested by Biber & Clark (2002) and also in the present research, the trend in the use of N+N sequences in contemporary English is characterised by a move towards stability in their use in all genres and speech communities, since in all cases there is only a slight increase in this use, when usage in the 1960s is compared with usage in the 1990s.

Finally, the contrast between spoken and written English suggested that there is a preference for the use of a higher proportion of N+N structures in written than in spoken language, which is probably due to the characterisation of spoken language as grammatically simpler than written English and to a tendency towards more verb-based phrases and fewer nominalisations.

This dissertation has presented a thorough analysis of N+N sequences, attending to three essential features which define them, that is, their status, their evolution, and their use in contemporary English. It can be concluded that, as far as their **status** is concerned, theoretical and empirical proof has been presented to support the claim that N+N sequences are syntactic constructs which, as regards their **evolution**, may enter a gradual process of lexicalisation and become lexical items, contributing to the expansion of the English lexicon. The gradual character of this process was emphasized, since it can explain the fuzziness of the boundaries between syntax and morphology. As regards their **use**, it has been shown that this differs according to variables such as textual category, speech community, and mode. Also, the great explosion in the use of N+N sequences in the first half of the 20th century was followed by a

more subtle but continuous increase which, it was argued here, was a linguistic response to factors of social nature.

The present research has been able to draw a number of conclusions on the topic of N+N sequences, but has also raised other questions, and these may form the focus for further research. Hence, it would be interesting to work with a corpus of texts and establish the semantic relations between the component parts of N+N sequences (e.g. *London underground*, locative and semantically transparent) in order to create taxonomies which allow testing for whether each textual category (narrative and non-narrative genres) shows any preferences for one or the other.

Several criteria have here been explained and applied to N+N sequences to test their degree of lexicalisation: modification, coordination, semantic opacity, and orthographic realisation. However, a further criterion might also be useful, that which measures the extent to which a given pattern is productive (also alluded to by Payne & Huddleston 2002), the forms deriving from it thus showing a lower degree of lexicalisation.

Certain findings from the corpus research have suggested that there is a stream of influence between American and British English (for example, in the use of plural N1s in N+N sequences). Consequently, it would be interesting to test whether this influence persists or even increases over time, and through which genres and by which kind of phenomena within N+N structures other than plural N1s it occurs.

Finally, the comparison between nominal premodifiers and postmodification by prepositional phrases has been a focus of study here. Whereas nouns as modifiers precede the head noun (e.g. ***drug*** *addiction*), prepositional phrases follow it (e.g. *an addiction* ***to drugs***). Speakers must decide which dependent they prefer to use in a given NP. This dissertation has alluded to reasons of permanence in time and contextual information to explain why one

construct is preferred over another. Hence, nominal modifiers provide a greater stability in exchange for a need for richer contextual information, whereas prepositional phrases are more ephemeral and less context dependent. However, empirical research would be useful here in order to test these suggestions and other possible reasons which may explain the choices speakers make.

6 APPENDIX

6.1 APPENDIX I LIST OF SAMPLES TAKEN FROM THE CORPORA OF WRITTEN ENGLISH

	BROWN				FROWN			
PRESS: REPORTAGE	A01	Atlanta Constitution	A17	Rocky Mountain News/ Dallas Morning News	A01	San Francisco Examiner	A24	The Tampa Tribune
	A02	Dallas Morning News	A19	Sun Baltimore	A05	St. Petersburg Times	A28	The Daily Chronicle
	A11	Sun Baltimore	A20	Chicago Tribune	A16	Daily News	A30	Rockford Register Star
	A12	Dallas Morning News	A26	Dallas Morning News	A19	Athens-Banner Herald	A34	San Francisco Examiner
	A16	Chicago Tribune	A27	Los Angeles Times/ Philadelphia Inquirer	A23	San Francisco Examiner	A35	The Wall Street Journal
PRESS: EDITORIAL	B08	Atlanta Constitution	B15	Providence Journal	B05	Savannah News Press	B21	San Francisco Examiner
	B09	Christian Science Monitor	B16	Chicago Tribune	B06	Chicago Tribune	B23	The Miami Herald
	B10	Sun Baltimore	B17	Newark Evening News/ Washington Post	B07	Chicago Tribune	B24	Savannah News Press
	B11	Los Angeles Times	B26	National Review	B09	The Christian Science Monitor	B25	New York Times
	B12	Newark Evening News	B27	Saturday Review	B13	The Orlando Sentinel	B27	The Nation
GENERAL FICTION	K01	First Family	K25	The Prophecy	K01	Bay of Arrows	K25	Sickness
	K02	The Ikon	K26	Against the Moon	K02	Nothing but Blue Skies	K26	Radon
	K03	Not to the Swift	K27	The vindication of Dr. Nestor	K03	Jazz	K27	Zoo
	K04	Worlds of Color	K28	Moving Day	K04	False Gods	K28	Green Grow the Grasses O.
	K05	Judges of Secret Court	K29	The Sheep's in the Meadow	K05	Through the Ivory Gate	K29	Babuji
ESSAYS	G01	Northern Liberals & Southern Bourbons	G07	Seven Who Set our Destiny	G01	Love &/or War	G08	Where Honor is Due
	G02	Toward a Concept of National Responsibility	G08	New Southern Fiction	G02	Whither Europe?	G10	On Becoming a Movement
	G03	Chances of Accidental War	G09	Avant-garde Choreography	G04	A Loaded Question	G11	Reading the Holocaust: a Postmodern Perspective
	G04	The Invisible Aborigine	G10	How Civil War Kept You Sovereign	G06	Justice is Still Undone	G13	The Greatness of George Washington
	G05	Evenings at the Bridge	G11	Science & Fear	G07	Take a Little Deadly Nightshade	G14	Babette's Feast: Feasting with Lutherans
SCIENCE	J04	Proton Magnetic Resonance Study	J15	Debilitating Muscular Weakness	J01	The Astronomy & Astrophysics Encyclopedia	J15	Molecular Mechanisms of Drug Addiction
	J05	Phosphorous & its Compounds	J16	Localization of Wound-tumor Virus Antigen	J02	Spectroscopy of the Earth's Atmosphere	J16	Spliced RNA of Woodchuck Hepatitis Virus
	J07	Micrometeorites	J78	Gain & Resolution of Fiber Optic Intensifier	J07	Intro to Astrophysical Hydrodynamics	J20	Moduli Space of Curves
	J12	Study of Pulmonary Anatomy	J79	The O'ptim.A1 Design of Chemical Reactors	J13	Minor & Trace Element Distributions in Bone	J21	The Self-Joinings of rank 2 Mixing Transformations
	J14	Thyroid-Stimulating Hormone	J80	Principles of Inertian Navigation	J14	Acute & Chronic Lymphocytic Leukemia	J79	Controlled Nuclear Chain Reaction: the First 50 Years

	LOB				FLOB			
PRESS: REPORTAGE	A03	The Times	A13	Daily Worker	A01	The Independent	A15	Financial Times
	A04	Daily Worker	A15	The Financial Times	A05	The Daily Telegraph	A16	The Independent
	A09	Daily Express	A16	Daily Herald	A10	Daily Mail	A24	The People
	A10	Daily Mail	A22	Sunday Pictorial	A11	The Times	A32	Hull Daily Mail
	A12	The Daily Mirror	A23	Sunday Express	A14	The Guardian	A33	Evening Standard
PRESS: EDITORIAL	B05	The Daily Mirror	B10	Financial Times	B05	Daily Mirror	B10	Financial Times
	B06	Daily Worker	B11	The Times	B06	The Independent	B11	The Times
	B07	The Daily Telegraph	B14	News of the World	B07	The Daily Telegraph	B12	The Sunday Times
	B08	Daily Mail	B16	The Sunday Telegraph	B08	Daily Mail	B13	Sunday Express
	B09	The Guardian	B23	Oldham Evening Chronicle	B09	The Guardian	B14	News of the World
GENERAL FICTION	K01	The Father's Comedy	K21	Joe Joe's Notice-Board	K01	Invitation to the Married Life	K21	Bears in Mourning
	K02	The Beach of Passionate Love	K22	Never Speak to Strange Men	K02	Where are the Snows	K22	The Notebooks
	K03	The Minister	K23	The Curtain Blown by the Breeze	K03	Dirty Tricks	K23	Baby Love
	K04	The Cardinal's Curse	K24	The Toothache	K04	Regeneration	K24	Bad Connection
	K05	Maid of Money	K26	All the Girls Love a Scholar	K05	Hero. A Fable	K26	A Fizzle of Fat Men
ESSAYS	G51	Popular Etymology	G57	Public Morality & the Criminal Law	G50	What Bibliography Can Do	G55	Recreating Sexual Politics:
	G53	Occasion for Ombudsman	G58	The Future Pattern of University Education in the United Kingdom	G51	How the Airport Came to Heathrow	G56	The Rationalisation of Housework
	G54	Well-informed Circles	G63	Things Known without Observation	G52	Can't We Make Moral Judgements?	G57	Matters of Conscience
	G55	The Moulding of Modern Man	G69	The New Divinity	G53	Eclipse of Empire	G59	Anglo-America & its Discontents
	G56	The Natural History of Quackery	G77	The Uses of Pornography	G54	The Persistence of Faith	G62	The National Trust in Northern Russia
SCIENCE	J13	Basic Essentials of Blood	J20	Eigenfunction Expansions	J01	Nuclear & Particle Physics	J18	Mathematics & the Image of Reason
	J14	Diabetes in an English Community	J21	A Permutation Representation of the Group of the Bitangents	J06	Chemical Chaos	J20	Hexagons, Conics; As & PSL2 (K)
	J15	Depth Dose Tables for Use in Radiotherapy	J69	Introduction to Transients	J14	Infectious Diseases of Humans	J21	On Antipletic Pairs in the Hamiltonian Formalism of Evolution Equations
	J16	Drowning: a Review	J70	Microwave Ferrities	J16	Live Donation of Human Body Parts	J77	Aircraft Designer's Viewpoint of Reliability & Maintenance
	J18	Probability Statistics of Time	J71	Double Bulb Angle Struts	J17	Thalidomide Treatment for Chronic Graft-versus-host Disease	J78	Technology Transfer: the BTG Model

6.2 APPENDIX II N+N STRUCTURES

N+N STRUCTURES IN WRITTEN AMERICAN ENGLISH I (BROWN CORPUS)

Abbey gate (BK2/163)[32]	Absorption coefficient (BJ78/123)	Absorption signal (BJ4/160)	Acceleration components (BJ80/58)	Acceleration noise (BJ80/55-56)
Accelerometer mirror (BJ80/126-127)	Accelerometer output (BJ80/16)	Accelerometer signals (BJ80/63)	Accuracy requirements (BJ80/111-112)	Action stations (BG3/106)
ADC cases (BA2/188)	ADC program (BA2/178)	Administration floor leader (BA19/95)	Advance copy (BB27/147-148)	Agriculture teacher (BA1/170-171)
Aid appropriations (BA27/11)	Aign coordinator (BA1/112)	Aiken street (BA19/31)	Air Defense Command (BG3/74)	Air drifts (BJ12/65)
Air Force (BG3/119)	Air Force Academy (BA12/69)	Air Force Base (BG3/76)	Air Force film (BA12/103)	Air Force fullback (BA12/81-82)
Air Force life (BB12/76)	Air Force psychiatrist (BG3/35)	Air surfaces (BJ78/111)	Air systems (BA19/194)	Airplane crash (BK3/16)
Airplane passengers (BB16/172-173)	Alabaster cockatoo (BK28/122)	Albany Plan (BG7/42)	Albright boys (BK26/3)	Alley cat (BK28/21)
Allowance department (BA11/158)	Alpha-beta-gammas (BK27/27)	Aluminum mirror (BJ78/197)	Amateur decorator (BB10/174)	Amen corner (BK4/29)
Ammonium ions (BJ16/16)	Amplifier gain (BJ80/64)	Ankle injury (BA12/118-119)	Annapolis road (BA19/45)	Anne Arundel county home (BA19/35-36)
Anne Arundel County Jail (BA19/120-121)	Anne Arundel county school superintendent (BA19/47)	Anne Arundel detectives (BA19/118)	Anne Arundel Hospital (BA19/37)	Anode aperture (BJ78/63)
Anode potential (BJ78/66)	Anode sphere (BJ78/59)	Anode voltage (BJ78/175)	Antelope season (BK26/95-96)	Antelope steak (BK26/130)
Antelope steak (BK26/130)	Anti-submarine secrets (BA20/19)	Anti-trust enforcement considerations (BB16/159)	Anti-trust judgements (BB16/152-153)	Anti-trust law enforcement (BB16/148)
Apartment construction	Apartment seekers (BA19/180)	Apartment-building field	Apparatus background	April-June quarter (BA26/148)

[32] Key: the data in brackets, for instance BK2/163, stand for corpus (B), text category (K: fiction), text number (2), and line number (163).

Blood constituent (BJ14/175)
Blood flow (BJ12/63-64)
Blood stream (BJ14/69)
Blood supply (BJ12/10)
Blood transfusions (BJ15/13)
Blueberry pie (BK1/25)
Board Chairman (BA27/160)
Board member (BA16/30)
Body tissues (BJ78/5)
Body water (BG4/109)
Bogey-symbol (BB26/178)
Boil extraction equipment (BA26/117-118)
Bomb secrets (BA20/40)
Bomber cockpits (BG3/15)
Bond angles and distances (BJ4/73)
Bond issue (BA1/125)
Bond length (BJ4/46)
Border patrolman (BA2/169)
Border states (BG10/124)
Bone marrow (BJ15/31)
Boston College (BB26/98)
Bourbon whiskey (BG1/6-7)
Box corridor (BK5/154)
Box turtle (BB9/34)
Boxwood Motel (BA17/126)
Brain Research Foundation (BA16/156)
Brandenburg gate (BA16/168)
Brass handle (BK28/86)
Brassica family (BJ14/99)
Breakfast dishes (BK26/32)
Brick home (BA19/123-124)
Brightness gain (BJ78/151)
Broadway play (BA16/1140)
Brown Palace Hotel (BA17/24)
Brush clump (BK2/102)
Brush surface-analyzer (BJ5/38)
Buffalo coach (BA12/133)
Buffet supper (BA16/47)
Bullet holes (BG3/172)
Bunt attempt (BA11/45-46)
Burr extractors (BA26/122-123)
Bus depots (BB9/133)
Bus driver (BA20/148-149)
Bus strickes (BG8/80)
Business and (professional) acumen (BG7/96)
Business circles (BG1/62)
Business district (BA19/104)
Business executives (BG1/18)
Business firms (BA26/161)
Business leaders (BB9/137)
Business machines (BG3/26-27)
Business successes (BB12/28)
Business ties (BG1/80-81)
Button pushers (BG3/32)
Cab driver (BA19/22)
Cable confirmation (BA26/29)
Cafeteria food (BK1/22)
Calcium lactate supplements (BJ15/76)
Calcium salts (BJ5/120-121)
California (Democratic) Council directorate (BB11/8-9)
California Democrats (BB11/1)
California drivers (BB9/171)
California natives (BB9/161)
Calory seafood (BB11/199-200)
Camden Cycly Company plant (BK25/38)
Camera film (BA20/19)
Camera industry (BA27/90)
Camp friends (BK29/25)
Camp reunion-Halloween party (BK29/58)
Camp uniforms (BK29/7)
Campaign slogan (BA16/154)
Cancer Research Foundation (BA16/22)
CANDLELIGHT CLUB (BB16/117)
Candy shop (BA20/35)
Cape May (BB17/97)
Capital movements (BA27/147)
Capital outlay (BA2/50)
Car sales (BA26/135)
Caravan routes (BG4/90)
Cardboard noisemakers (BK29/131)
Career girl (BA16/91)
Carnegie Theater (BA16/145)
ADC case load (BA2/181)
Cash register (BA19/32-33)
Chain stores (BB16/74-75)
Christmas bow (BK28/160)
Church fathers (BB12/171)
Cigarette lighters (BA20/108)
City council (BA1/82)
City hat (BK28/61)

(BA26/1-2)
Dallas stock offering
(BA26/28)
Day Purse
(BA11/141)
Death sentence
(BB26/154)
Defense policy reappraisal
(BG3/66)
Denton (Independent) School
District (BA2/171-172)
Depression years
(BA27/162)
Detergency process
(BJ5/145)
Detergent testing
(BJ5/55-56)
Device resolution
(BJ78/165)
Dipole interaction
(BJ5/100)
Distribution center
(BA26/76-77)
District game
(BA12/28)
Dodge Corporation
(BA19/157)
Drift error
(BJ80/153)
Dust concentration
(BJ7/18)
Ear lappets
(BK27/55)
East Greenwich school system
(BB15/77)
Education courses

(BA26/39)
Damnation scene
(BK2/122)
Day schools
(BA2/39)
Debut supper dance
(BA16/83)
Defense Secretary
(BB16/13)
Denver Country Club
(BA17/31)
Desert island
(BB8/115)
Detergent action
(BJ5/29)
Detroit fellow
(BK3/69)
Diameter limitation
(BJ78/26)
Directorate fans
(BB11/23)
Distribution curve
(BJ7/91)
District headquarters
(BB11/3)
Dog lung injection studies
(BJ12/119)
Du Pont stockholders
(BB16/136)
Dust orbits
(BJ7/20)
East Greenwich (Free) Library
(BB15/67-68)
East Providence Rescue Squad
(BB15/128)
Education leaders

(BA2/113)
Dance composition
(BG9/31)
Daylight hours
(BG11/79)
Debut tea
(BA16/76-77)
DeKalb citizens
(BB8/24)
DePaul University
(BB16/104)
Design problem
(BJ79/4)
Detergent actives
(BJ5/4)
Development Commission
(BB15/31)
Digitalis glycosides
(BJ14/1)
Dirt particles
(BJ5/108)
Distribution function
(BJ79/144)
District leaders
(BB11/24)
Dog wagons
(BA17/106-107)
DUPONT CASE
(BB16/132-133)
Duty cycle
(BJ78/20)
East Greenwich Fire District
services (BB15/63-64)
Egg case
(BK27/155)
Education officials

(BA26/98)
Dance-theatre works
(BG9/13)
Deacon Board
(BK4/124)
Debutante Cotillion
(BA16/74)
DeKalb County
(BB8/13)
Depreciation allowance
(BB26/71)
Detector calibration
(BJ7/71)
Detergent builders
(BJ5/5)
Development Problem
(BB15/2)
Dingo dog
(BG4/103)
Disarmament adviser
(BB11/150)
District boundaries
(BB11(35/36)
District office
(BA26/109)
Dollar money
(BK4/105)
Dust blanket
(BJ7/127-128)
Dwight reformatory
(BA20/162-163)
East Greenwich Police
Department (BB15/59)
Edgewater Station
(BA19/138)
Education program

(BA26/156)
Day clothes
(BK28/119)
Death penalty
(BB26/145)
Decision making
(BG3/144-145)
DeKalb County cannery
(BB8/15)
Depression days
(BA26/62)
Detector sensitivity
(BJ7/131)
Detergent formulation
(BJ5/48)
Device and quantum noise
(BJ78/48)
Dipole effects
(BJ4/3)
Dispersion mode
(BJ4/159-160)
District court
(BA20/115)
Ditch emergencies
(BG3/81)
Dream experience
(BG9/49)
East Berlin (communist) radio
(BB11/137)
Dynamo stage
(BA16/185)
East Greenwich School
Committee (BB15/47-48)
Editorial comment
(BB16/133)
Education project

(BA2/148)
Egg-hatching powers
(BK27/34)
Election Day
(BB17/5)
Electron line-density
(BJ7/167)
Emancipation Proclamation
(BG10/125)
Emission spectra
(BJ4/127)
Enemy land
(BK2/21-22)
Entrance hall
(BK27/66-67)
Estate brokers
(BA2/88)
Evanston and Wilmette streets
(BA20/174)
Evening service
(BB8/52)
Eye sockets
(BG4/122)
Fair grounds
(BA26/83)
Family car
(BA17/97)
Family unity
(BA2/196)
Feed states
(BJ79/36)
Fiber plate
(BJ78/72)
Field illumination
(BJ16/53)
Fire storm

(BB9/87)
Egghead tastes
(BG1/18)
Electrode configuration
(BJ78/68)
Electron scatter
(BJ78/198)
Emergency help
(BB17/136)
Empire room
(BA16/159)
Enemy subs
(BA20/7)
Entrance tickets
(BG5/55)
Estate people
(BK4/115)
Evanston executive
(BA20/172)
Excise taxes
(BA2/82)
Fabric wall panels
(BB10/167)
Fair staff
(BA16/61)
Family loyalties
(BB12/32)
Farewell supper
(BA16/95)
Fellow countrymen
(BG7/24)
Fiber plate substrates
(BJ78/78)
Field shift
(BJ4/172)
Flag wavers

(BA19/66)
Eisenhower Administration
(BB15/188)
Electromagnet system
(BJ4/152)
Election ballot
(BA1/104)
Emergency room
(BB8/167-168)
Employment Act
(BG2/77)
Energy commission
(BA20/87)
Equilibrium sorption data
(BJ5/167-168)
Estate tax
(BB15/18-19)
Evanston policeman
(BA20/173)
Expense allowances
(BA1/142)
Factory and exhibition area
(BA26/84)
Fairchild Camera
(BA27/117)
Family newspaper
(BB11/175)
Farm club
(BA11/106)
Female-six girls
(BB8/96)
Fibrin thrombi
(BJ15/139)
Field-flattening property
(BJ78/69)
Flight equipment circuits

(BB15/76)
Ejection momentum
(BJ7/110-111)
Electron (optical) system
(BJ78/29)
Election campaign
(BA1/184)
Emergency telephone building fund drive (BA16/134-135)
Employment levels
(BA27/15)
Energy particles
(BJ78/7)
Error angle
(BJ80/149)
Estate tax problem
(BA26/66)
Evanston traffic school
(BA20/177-178)
Export markets
(BB26/64)
Factory facilities
(BA26/127)
Fallout shelters
(BA16/112)
Family physician
(BB15/164)
Farm houses
(BA17/123)
Fiber coupler
(BJ78/70)
Field conditions
(BJ80/112)
Film dynodes
(BJ78/25)
Florida Grapefruit League news

(BA26/158-159)
Eleanor Roosevelt Tractor Committee acts (BB26/162)
Electron bundles
(BJ78/186)
Election commissioners
(BB16/90)
Emission image intensifier
(BJ78/10)
End walls
(BG5/57)
Engine noise
(BJ80/53)
Escheat law
(BA2/14)
Ethyl acetate
(BJ16/79)
Evening hours
(BB27/83)
Eye range
(BK2/11-12)
Factory operations
(BA26/108-109)
Family breakups
(BA2/192)
Family possessions
(BG4/129-130)
Fashion show
(BA16/52)
Fiber diameter
(BJ78/123)
Field goal
(BA12/73)
Film studio exec
(BA16/125)
Flower gardens

(BB15/31)
Group members
(BA26/1-32)
Growth Stock Fund
(BA27/119)
Gyro and platform-controller combination (BJ80/10-11)
Gyro output
(BJ80/9)
Gyrocompass alignment
(BJ80/162)
Harbor View Apartments
(BA19/187-188)
Harris Trust + Savings Bank
(BA27/3-4)
Hen ledger
(BK27/16)
Highway bond money
(BA1/115)
Home atmosphere
(BB10/138)
Home town
(BG1/184)
Hormone synthesis
(BJ14/76)
Hospital admission
(BJ15/75)
House (Foreign) Affairs Committee (BB12/53-54)
Household application
(BJ5/20)
Houston teacher
(BA2/137)
Hydrocarbon tails
(BJ5/137)
Hypervelocity impacts

(BG9/157-158)
Group participation
(BK4/34)
Growth stocks
(BA26/56)
Gyro drift
(BJ80/70)
Gyro output axis
(BJ80/13)
Gyrocompass heading
(BJ80/161-162)
Hardware and oil mill supplies
(BA26/104-105)
Harvard University Press
(BB27/161)
Herringbone design
(BK29/111)
Highway Department Source
(BA1/128)
Home fallout shelter
(BB17/26)
Honeymoon suite
(BA17/127)
Horse look
(BK25/85)
Hospital care
(BB15/151)
House bills
(BA2/69)
Household market
(BJ5/12)
Hughes Aircraft
(BB11/20)
Hydrogen atom
(BJ4/75)
Ice box

(BA1/66)
Growth forces
(BA27/34)
Guide posts
(BB15/82)
Gyro drift biases
(BJ80/83)
Gyro output-axis torquer
(BJ80/17)
Gyro-platform-servo combination (BJ80/3)
Hardware manufacturing company (BA19/179)
H-bombs
(BG3/125)
High school (teaching) certificate (BA2/142)
Highway reconstruction bonds
(BA1/124-125)
Home folks
(BA12/130)
Honor attendants
(BA17/141)
Horse lung
(BJ12/81)
Hotel Astor
(BK29/105)
House Committee
(BA2/6)
Household use
(BJ5/7)
Hunter-killer type
(BA20/96)
Hydrogen bond
(BJ4/36)
Ice water

(BA20/180)
Growth industry
(BA26/54)
Gulf Coast district
(BA2/77)
Gyro drifting
(BJ80/102-103)
Gyro torquer
(BJ80/30)
Haberdashery store window
(BK29/162)
Harlem boy
(BK3/39-40)
Health problem
(BB15/185)
High school students
(BB16/36)
Hinckley Gin Supply Co
(BA26/121)
Home offices
(BA26/126)
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N+N STRUCTURES IN WRITTEN BRITISH ENGLISH I (LOB CORPUS)

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(LA9/14)
Council houses
(LB23/142)
Craft apprentice ships
(LB6/231-232)
Crowther Committee
(LG58/9)
Current/time curve
(LJ69/131)
Death duties
(LB7/121)
Deck chair
(LK22/35)
Defence statement
(LB6/168)
Depth dose
(LJ15/65)
Design methods

(LJ15/59-60)	(LJ15/21-22)	(LA9/29)	(LB8/74)	(LJ71/83)
Devilment business	Diabetics Diagram	Dialect form	Dialect name	Dictionary-maker
(LB5/168-169)	(LJ14/97)	(LG51/191)	(LG51/164-165)	(LG51/23-24)
Dilution factor	Dinner time	Disarmament problem	Dividend shock	Dog-days
(LJ13/150)	(LK22/143)	(LA4/97)	(LA16/151)	(LG54/14)
Dog-Latin	Doncaster Cups	Donor Blood	Dorchester Hotel	Doria Palace
(LG77/114)	(LA23/65)	(LJ13/152)	(LA16/140)	(LK4/73)
Dose-rate	Downing Street	Draught-proof floor coverings	Drink, beer, insurance, gas light and coke, match, (banking) and estate company chief	Drug addict
(LJ15/194)	(LB8/11)	(LK22/25)	(LA13/125-126)	(LG56/109)
Drug bill	Drug costs	Drug exports	Dust disease	Dust standard
(LB9/179)	(LB9/191)	(LB9/164)	(LA13/92)	(LA13/87)
Earth tremor	Earth-bath	Earth-bathing	Ease questions	East Kent Quarter Sessions
(LK24/138)	(LG56/133)	(LG56/121)	(LB11/91)	(LA12/212)
Ebony (black) hair	Edinburgh character	Edinburgh Faculty	Edinburgh University	Editorial article
(LK21/142)	(LG56/176)	(LG56/181)	(LG56/100)	(LA3/175)
Ego-ideal	Eichmann Mind	Eigenfunction expansion	Eigenvalue problem	Election programmes
(LG55/107)	(LB5/98)	(LJ20/59)	(LJ20/31)	(LG53/147)
Election year	Electricity industry	Electron shell	Embassy personnel	Emergency resolution
(LA3/162)	(LA16/60)	(LJ70/57)	(LB9/213)	(LB11/19)
Emergency session	Emmanuel College	End product	End-plate thickness	Enemy action
(LA15/27)	(LK26/148)	(LJ70/142-143)	(LJ15/54)	(LA4/122)
Enemy hands	Energy radiation	Engesser equation	England trial	Enox hand tools
(LG55/163-164)	(LJ15/25)	(LJ71/172)	(LA23/210)	(LA16/175)
Entropy increase	Equilibrium pressure	Escape officer	Escape route	Espresso bars
(LJ18/194)	(LJ70/81)	(LA9/97-98)	(LK22/8)	(LK26/26)
Esso Petroleum Bill	Estate Duty	Eton and Cambridge boy	Euler curve	Evening lectures
(LG53/131-132)	(LB7/117)	(LA13/144)	(LJ71/155)	(LG56/120)
Everest expedition	Examination questions	Exchange transfusion	Exchequer subsidy	Excise duty
(LA10/118)	(LB11/84-85)	(LJ13/163)	(LB23/162)	(LB7/170)
Exclusion clauses	Export markets	Export performance	Export trade	Extrusion orifice
(LB16/160)	(LB9/161-162)	(LB7/42)	(LB9/198)	(LJ70/146-147)
Extrusion techniques	Eye complaint	Eye consultant	Failure behaviour	Family circumstances
(LJ70/150)	(LG56/181)	(LG54/137-138)	(LJ71/15)	(LA12/179-180)
Family connection	Family doctor	Family firms	Family man	Family ownership

(LK1/44)	(LB14/183)	(LB7/120)	(LB8/134)	(LB7/126)
Family party	Family purse	Fancy-dress party	Fare and dinner grants	Fares freeze
(LG54/117)	(LB14/147)	(LG54/108-109)	(LB23/91)	(LA15/31)
Fares levels	Farewell speech	Fashion magazines	Fashion show	Father figure
(LA15/22)	(LA4/88)	(LK23/158)	(LA9/40)	(LA3/120)
Fear-relief	Feather bed	Feed Grains Bill	Female audience	Female side
(LG55/148)	(LK23/67)	(LA15/192-193)	(LG56/135)	(LG54/118)
Female slaves	Fence sitters	Ferrite sample	Ferrite spinels	Ferrite structure
(LG54/155)	(LB8/146)	(LJ70/170)	(LJ70/52)	(LJ70/4)
Fertility cults	Fiat millionaire	Field method	Field work	Field-marshals
(LG77/58)	(LA10/177)	(LJ15/85)	(LJ14/184)	(LG54/93-94)
Fighter ace	Fighter aircraft	Fighter bombers	Film manufacturers	Finance house
(LA9/24)	(LA3/211-212)	(LB6/49)	(LB10/215)	(LB10/176-177)
Financial Times index	Fire brigade	Fireside chat	Fish-shop	Fison Award winner
(LA16/79)	(LA12/51)	(LA12/78)	(LK21/89)	(LA13/73)
Flame fusion process	Flower display	Fly preparations	Foggia police	Folk etymology
(LJ70/192)	(LA10/54-55)	(LG56/15)	(LG54/77)	(LG51/31)
Food rationing	Football pools	Form feldware	Fort Beit	Fourier coefficient
(LJ14/91-92)	(LA22/37)	(LG51/160-161)	(LK23/59)	(LJ20/232-233)
Fourier conditions	Freight charge	Freshwater drowning	Fruit standard	Function tables
(LJ20/61)	(LB10/114)	(LJ16/15)	(LK1/26-27)	(LJ69/15)
Funeral director	Furnace equipment	Furniture vans	Galois Field	Gamma rays
(LK24/24)	(LJ70/200)	(LK23/158)	(LJ21/9)	(LJ15/148)
Gang-plank	Gas chamber	Gas cylinders	Gas formation	Gas lamps
(LK22/58)	(LJ18/148)	(LK24/140)	(LJ16/90)	(LK24/95)
Gas meters	Gas Purification	Gas Works cylinders	Gateway burst	Gauge length
(LK26/176)	(LA16/152)	(LK24/198)	(LA23/156)	(LJ71/66)
Geneva conference	Gerard extensometer	Germ warfare	Ghost story	Glass carafes
(LA4/46)	(LJ71/54)	(LG55/168)	(LG77/196)	(LK1/74)
Glass panel	Glass tubes	Glenview Avenue	Glory-hole	Glossop Road
(LK24/9)	(LG56/6)	(LB10/117)	(LG51/167)	(LB10/222)
Gloucester Railway Carriage	Gloucester shares	Gloucester Wagon	Gloucester Wagon shares	Glucose method
(LA16/182-183)	(LA16/187)	(LA16/188)	(LA16/186)	(LJ14/30)
Glucose tolerance curve	Glucose tolerance test	God-hypothesis	Gold Cup winners	Gold losses
(LJ14/99)	(LJ14/25)	(LG69/136)	(LA23/152)	(LB10/228)
Golf bargain	Government circles	Government connivance	Government finance	Gower Street

(LA9/208)
Graham anecdote
(LG56/25)
Group Captain
(LA9/24-25)
Group-structure
(LG55/151)
Haemolytic transfusion reaction
(LJ13/134)
Hand baggage
(LK26/15)
Haul category
(LB10/123)
Health charges
(LB14/8)
Health Service changes and charges (LB14/130)
Heart disease
(LJ16/81)
Helmet title
(LA22/17-18)
Hire-purchase goods
(LA12/216)
Home help
(LB14/175)
Home-builders
(LA16/209)
Hook shot
(LA22/134)
Hospital and consultant services
(LB14/1701-171)
Hospital nurse
(LK23/139)
Hotel owner
(LA10/162)
House-building

(LA4/209)
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(LG77/147)
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(LG55/80)
Grundig company
(LA16/153)
Hall committees
(LB16/63)
Hand basin
(LK26/78)
Head girl prefect
(LB23/177)
Health expenditure
(LB9/184)
Health Service lists
(LB14/157-158)
Heart failure
(LJ16/12)
Hermit type
(LJ14/169)
Hire-purchase network
(LA12/210)
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(LB10/65)
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(LA16/212)
Hornsey Journal
(LB9/38)
Hospital Boards
(LB14/170)
Hospital pharmacists
(LB11/195)
Hotel room
(LK5/51)
Household goods

(LB6/15-16)
Grass roots
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(LG55/133)
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(LB16/154)
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(LJ15/158-159)
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Health Minister
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Hill farmers
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Holders Hill Avenue
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(LB10/29)
Homily folk etymology
(LG51/153-154)
Hornsey Labour Party
(LB9/31)
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(LB10/147)
Hospital physicists
(LJ15/14)
House (of Commons) rumpus
(LB14/129)
Hulme Grammar Schools

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(LA15/213)
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(LJ13/150-151)
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(LK21/17)
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(LK3/108)
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(LJ70/114)
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(LB14/174)
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(LB9/179)
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(LB9/168)
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Home seekers
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(LB11/81-82)
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(LB14/72)
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(LA15/206)
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(LA4/136)
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(LA10/187)
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(LA13/39)
Peace settlement

(LB9/59)	(LB8/23-24)	(LB6/130)	(LB6/135)	(LB9/126-127)
Pen picture	Penalty area	Pencil stubs	Pension liberalisation	Pension scheme
(LA22/46)	(LA22/175)	(LK1/61)	(LA15/204)	(LB14/41)
Percentage depth dose	Percentage figure	Percentage rate tax	Permutation representation	Perry-Robertson strut curve
(LJ15/43)	(LJ14/179)	(LB7/190-191)	(LJ21/2)	(LJ71/216)
Phase shift	Phil Taylor charge	Philharmonia Orchestra	Philharmonia players	Photon energy
(LJ69/187-188)	(LA23/179)	(LA10/139)	(LA10/144)	(LJ15/185)
Pic prize money	Piccadilly firm	Pince-nez	Plains Development	Plastic buckling
(LA22/218)	(LA9/40)	(LK22/23)	(LA16/53)	(LJ71/168)
Plastic torsion-flexure approach	Platen apparatus	Platform exit	Po Valley	Polaris base
(LJ71/207)	(LJ71/67)	(LK3/33)	(LG54/39)	(LA4/112)
Polaris depot ship	Polaris missile base	Polaris submarine	Polaris submarine bases	Police description
(LA4/129)	(LA4/103)	(LA4/123)	(LA4/193)	(LA12/26)
Police headquarters	Police methods	Police officer	Police organisation	Police quarters
(LG54/185)	(LG55/189)	(LA12/205)	(LA12/24)	(LK23/50)
Police statement	Policy decisions	Policy details	Policy differences	Polythene Bags
(LA12/23)	(LB6/87)	(LB6/133)	(LB23/40)	(LB10/194)
Polythene film	Polythene Product Committee	Pop and gas baron	Population groups	Port wine
(LB10/195)	(LB10/200)	(LA13/122)	(LJ14/60)	(LG56/51)
Post Office	Post Office stores	Post- war years	Potato Acreage	Potato Marketing Board
(LA16/59)	(LB9/84)	(LB23/141)	(LB10/75)	(LB10/77)
Potato Marketing Scheme	Pottery moulds	Poultry business	Poultry farmer	Pound notes
(LB10/89)	(LG77/139)	(LA12/127)	(LA12/117)	(LK23/74)
Power cable	Powerhouse performance	Prescription costs	Prestige satellite	Pre-war houses
(LG54/63)	(LA22/60-61)	(LB14/201)	(LA3/173-174)	(LB23/139)
Price movements	Price Regulation Scheme	Price restraint	Prince Edward Island	Probability distribution
(LA15/217)	(LB9/163)	(LB9/160-161)	(LA3/103)	(LJ18/87)
Probability ratio	Probability theory	Production methods	Profit figures	Profits jump
(LJ18/72)	(LJ18/47)	(LB7/39)	(LA16/17)	(LA16/118)
Profits tax	Programme Panorama	Proof strength	Proof stresses	Property ownership
(LB7/142)	(LA12/79-80)	(LJ71/73)	(LJ70/5-6)	(LB7/116)
Property tycoon	Property tycoonery	Protocol confussion	Publication Bill	Public relations organisations
(LB8/184)	(LB8/193)	(LA13/130-131)	(LG77/76)	(LB16/205-206)
Pullman car	Punishment cell	Purchase tax	Purchase-tax system	Question Time
(LK1/105)	(LA9/106)	(LB7/160)	(LB7/190)	(LG53/134)
Quota prescriptions	Race favourite	Race migration	Race parade	Racecourse debut

(LB10/83-84)
Radio equipment
(LK2/112-113)
Railway rates
(LB11/53)
Ravine Road
(LB11/192)
Record cards
(LJ14/107)
Rent income
(LB23/146-147)
Rents policy
(LB23/152)
Retail pharmacists
(LB11/199)
Revenue people
(LB5/147)
Rh typing
(LJ13/103)
River Derwent
(LJ16/111)
Rocket and Space Travel
(LA3/200)
Rome specialists
(LG54/136)
Rugby Union Specials
(LA23/178)
Salem Institute
(LK24/139)
Saloon number
(LA12/31)
Saturation magnetisation
(LJ70/221)
Scatter component
(LJ15/124)
School life

(LA23/9)
Radio-therapist
(LK23/106)
Raleigh Industries
(LA16/123)
Rebate scales
(LB10/180)
Recurrence paradox
(LJ18/174)
Rent policies
(LB23/117)
Research centre
(LK23/22)
Retail society
(LA15/129)
Revenue-raiser
(LB7/208)
Rhodes scholar
(LG58/149)
Road work
(LA23/143)
Rocket stages
(LA3/193)
Rome Treaty
(LB11/119)
Russell plea
(LA4/189)
Sales consultant
(LA10/50-51)
Salt water
(LJ16/9)
Savile Rw suit
(LK5/197)
Scatter contribution
(LJ15/139)
School teacher

(LK26/108-109)
Rafferty header
(LA22/156)
Range-cost graph
(LB10/130)
Receipt-book
(LG54/69)
Recurrence time
(LJ18/189)
Rent rebate
(LB23/154)
Research work
(LK26/71-72)
Retail trading committee
(LA15/139)
Reversibility paradox
(LJ18/172)
Ridgeway House
(LB11/69)
Robbins Committee
(LG58/9)
Roll call
(LA9/107)
Rosyth dockyard
(LB6/235)
Safety officer
(LA13/88)
Sales Tax
(LB7/164)
Salt water drowning
(LJ16/44-45)
Scarborough conference
decisions (LA4/134)
School curriculum
(LB11/94-95)
School work

(LA23/126)
Railway boards
(LB11/34)
Rarity value
(LK22/13)
Reception room
(LK23/36)
Renaissance princes
(LG54/93)
Rent resources
(LB23/150)
Resistanceless case
(LJ69/238)
Retirement pensions
(LB14/94-95)
Rh antibodies
(LJ13/7)
Rimswell-road
(LA12/171)
Robertson extensometer
(LJ71/53)
Rome airport
(LG54/204)
Rough-house treatment
(LA23/102)
Sage and screen comedian
(LA22/28-29)
Sales-girl
(LA9/43)
Salvage vessels
(LA13/8)
Scarborough decisions
(LB6/114-115)
School friends
(LA9/170)
School-masters

(LA23/166)
Railway employees
(LK5/129)
Rate subsidy
(LB23/168)
Recession Bills
(LA15/190)
Rent Act
(LA16/219)
Rent scheme
(LB23/104)
Rest chapels
(LK24/24)
Revenue accounts
(LB23/150)
Rh system
(LJ13/183)
Risk-taking
(LB7/38)
Rockefeller Brothers
(LG55/93)
Rome reports
(LG54/87)
Routine antibody detection
method (LJ13/8)
Sakai weapons
(LK2/116)
Saline albumin and trypsin or
papain techniques (LJ13/73-74)
Sassenach fame and fortune
(LA22/242)
Scarborough Labour Party
Conference (LB6/87)
School leavers
(LA12/102)
Science places

(LB23/186)	(LB11/96)	(LA9/174)	(LG58/34)	(LG58/29-30)
Sea voyages	Sea water	Sea water drowning	Seat mile	Security affairs
(LG56/47)	(LJ16/19)	(LJ16/23-24)	(LB10/124)	(LA4/24)
Security officer	Social Security system	Series circuit	Serum/papain mixture	Service Dates
(LA9/92)	(LG56/74)	(LJ69/93)	(LJ13/19-20)	(LA15/108)
Sewage problems egghead	Sex group	Shame-anxiety	Share purchase	Share transactions
(LA3/123)	(LG77/46)	(LG55/105)	(LA16/52-53)	(LB7/132)
Share values	Share-exchange terms	Shear centre	Shear modulus	Shift system
(LA16/80)	(LA16/185)	(LJ71/99)	(LJ71/164)	(LG54/148-149)
Shirt cuffs	Shirt-sleeves	Shock news	Shoe shops	Shoe stores
(LK1/8)	(LK3/58)	(LA16/152)	(LA15/113)	(LA15/116-117)
Shop stewards	Shop-assistant opponent	Sickness benefit	Sidney property	Sight-seeing
(LA4/174)	(LA9/127-128)	(LB14/71)	(LA13/141)	(LK22/178)
Sillett accident	Silver cigarette box	Siren song	Sister organizations	Site preference
(LA22/82)	(LA10/60-61)	(LB16/24)	(LG55/190)	(LJ70/58)
Sixpenny bargain	Skin dose	Slave-girls	Sledge-hammers	Sleeveless summer dresses
(LA16/5)	(LJ15/202)	(LG54/159)	(LB5/56)	(LK3/59)
Slenderness ratio	Slenderness Ratio method	Sloane Street	Slum clearance	Soccer lesson
(LJ71/157)	(LJ71/218)	(LB10/143)	(LB23/129)	(LA22/63)
Social Service expenditure	Societies Gazette	Society branch managers	Society Footwear	Society managers
(LB9/185)	(LA16/196)	(LA16/216-217)	(LA15/117)	(LA16/203-204)
Sodium lighting	Soldier-father	Sound change	Sound groups	Source container
(LK24/96)	(LB8/133)	(LG51/120)	(LG51/171)	(LJ15/209)
Source voltage	Source-skin distance	South Wales area	Southampton Society	Southend Airport
(LJ69/156)	(LJ15/206-207)	(LA13/86)	(LB16/85)	(LA10/219)
Southend leader	Southport police station	Soviet Communist Party	Space age	Space constant
(LA22/148-149)	(LA12/17)	newspaper (LA4/73)	(LB6/214)	(LJ69/56)
Space Project	Space research	Space satellite	Space satellite project	Speech experts
(LA3/144)	(LA3/151)	(LA3/155)	(LA3/149-150)	(LA3/128)
Speedway Box Office	Speedway history	Spin trap	Spinel crystal structure	Spinel crystals
(LA22/55)	(LA22/11)	(LA22/125)	(LJ70/16)	(LJ70/20)
Spinel lattice constant	Spinel unit cell	Sponge cake	Sports car	Spurs boss
(LJ70/172-173)	(LJ70/27)	(LK22/170)	(LB16/169)	(LA22/238)
Spurs equaliser	Squad-leaders	St. Leger chance	Stable door	Stable yard
(LA22/111)	(LG55/17)	(LA23/101)	(LK24/8)	(LA23/143)
Stamp Duty	State monopoly	State reactions	State visit	State-Police

(LB7/132)	(LB8/206)	(LJ70/116)	(LA3/9)	(LG55/188)
Stationery stores	Steam condensers	Steamer Point	Steel ball mill	Steel Company
(LK1/58)	(LA15/94)	(LG54/174)	(LJ70/123)	(LA16/45)
Stock Exchange	Stock low	Stock market	Stone lions	Stone pillars
(LA13/171)	(LA3/89)	(LA16/130)	(LK26/70-71)	(LK26/19-20)
Stone quarries	Storage period	Storage purposes	Store firm	Street Offences Act
(LK4/138)	(LB10/230)	(LB10/213)	(LA16/69)	(LG57/8)
Strength specimens	Stress curve	Stress values	Stress-strain curve	Strut behaviour
(LJ71/25)	(LJ71/128-129)	(LJ71/142)	(LJ71/152)	(LJ71/4-5)
Sturm-Liouville case	Style statesman	Subject matter	Subscription fund	Success story
(LJ20/5)	(LB16/34)	(LG77/81)	(LG54/76)	(LB14/162)
Summer afternoons	Summer breeze	Summer holiday season	Summer issue	Summer wind
(LK23/104)	(LK23/120)	(LB9/114)	(LG53/7)	(LK23/126)
Sunday paper	Sunday Telegraph	Supply apparatus	Supply current	Suppression era
(LB16/184-185)	(LB16/168)	(LB6/43)	(LJ69/182)	(LA13/104)
Surface back-scatter factors	Surface dose	Surface grinding	Surplus years	Surtax cheque
(LJ15/143)	(LJ15/115)	(LJ70/184)	(LB10/96)	(LB7/60)
Surtax levels	Surtax payers	Survey data	Swinburne man	Swivel armchairs
(LB7/144)	(LB23/47)	(LJ15/18)	(LK26/129)	(LA10/188)
Table napkin	Table tennis	Table-tennis table	Tadcaster Brewery	Tangent modulus
(LK3/147)	(LA9/135)	(LA9/125)	(LA16/34)	(LJ71/153)
Tangent prime	Tangent space	Tank wall	Tape recordings	Tape-recorder
(LJ21/47)	(LJ21/58)	(LJ15/33)	(LB5/65)	(LA10/197)
Tariff charges	Tariff cuts	Tax changes	Tax cut	Tax gatherers
(LB7/172)	(LA15/149)	(LB7/28)	(LA15/186)	(LB5/161)
Tax reformers	Tax reforms	Tax status	Tax structure	Tax system
(LB7/26)	(LB7/3)	(LB7/79)	(LB7/19)	(LB7/113)
Taxation reform	Taxation system	Tax-payers	Tea things	Team-mates
(LB7/7)	(LB7/44)	(LA16/57)	(LK2/55)	(LA22/107)
Teddy-bear	Teenage ban row	Telephone call	Telephone operator	Post-Moss Side
(LG51/15)	(LA13/48)	(LG63/45)	(LB8/212)	(LB9/142)
Teletherapy units	Television report	Television techniques	Tell-tale word	Temperature behaviour
(LJ15/148)	(LA4/31)	(LA3/127)	(LK1/39-40)	(LJ70/221)
Tennis ball	Tennis court	Tennis noises	Tension specimens	Terrace houses
(LK23/110)	(LK23/86)	(LK23/108)	(LJ71/48)	(LK24/97)
Test pieces	Tests conference	Theodolite cricket	Thor missiles	Thought problems

(LJ71/70)
Thought reform
(LG55/120)
Time-direction
(LJ18/193)
Time-series theory
(LJ18/19-20)
Torsion-flexure buckling
(LJ71/141)
Tory Government
(LB23/9)
Tory policy
(LB6/150)
Tourist Board
(LG54/17)
Tourist way
(LK21/52)
Trade Union members
(LK1/77)
Trades Union Congress
(LA4/177)
Transient current
(LJ69/40)
Transport system
(LB11/24)
Treasury official
(LB9/82)
Trouser knees
(LK24/172)
TV interview
(LA12/88)
UK flights
(LA15/64)
Underground service
(LK5/91-92)
Unit volumes

(LA4/47-48)
Thought-summary
(LG55/81)
Time-integral
(LJ69/209)
Token tribute
(LB14/82)
Torsion-flexure equation
(LJ71/182)
Tory leader
(LB8/25)
Tory rank
(LB23/71)
Tourist chief
(LK22/63)
Town Council
(LB23/88)
Trade union officials
(LA13/233)
Traffic conference
(LA15/34)
Transition periods
(LB7/59)
Trap-door
(LJ18/148)
Treasury ties
(LB8/208)
Try scale
(LA12/149)
TV pictures
(LB5/69)
UK airports
(LA15/55)
Underground station
(LK5/143)
United Kingdom (Atomic)

(LB5/80-81)
Tilbury B power station
(LA15/93-94)
Time-reversals
(LJ18/196)
Toothill Report
(LB9/96)
Torsion-flexure form
(LJ71/27)
Tory menace
(LB6/191)
Tory strength
(LB6/152)
Tourist fares
(LA15/67)
Town Hall
(LK24/135-136)
Trade unionist
(LB5/57)
Traffic talks
(LA15/30)
Transmission line
(LJ69/65)
Travel allowance
(LB16/222-223)
Trestle table
(LK24/144)
Tube Investments
(LA16/120)
Tweed suit
(LK1/185)
UK Ministry
(LA15/13)
Union chief
(LA12/237)
University church

(LA4/121)
Tilbury contract
(LA15/103)
Time-scale
(LG58/91)
Torsion-flexure (buckling) curve (LJ71/160-161)
Tortoiseshell glasses
(LA12/28)
Tory MP
(LA13/147)
Tottenham court Road station
(LK26/24)
Tourist office
(LK22/61)
Town houses
(LK5/37)
Trade unions
(LB8/143)
Traffic year
(LA15/45)
Transport Commission
(LA16/61)
Travel Association
(LB5/7)
Tribute-money
(LK23/77)
Turbine engine
(LB10/134)
Typhoo Tea
(LA16/51)
UN command
(LG55/140)
Union Fellows
(LK26/99)
University College

(LG55/75)
Time constant
(LJ69/180)
Time-series
(LJ18/4)
Torsion-flexure
(LJ71/16)
Tory constituency parties
(LB8/83)
Tory Party
(LB23/10)
Tottenham defenders
(LA22/101)
Tourist people
(LK21/51)
Trade Fair
(LK22/19)
Trades council leaders
(LA13/233-234)
Transfusion reaction
(LJ13/146-147)
Transport Minister
(LA3/209)
Travel-film colours
(LK23/27)
Trouble –spot
(LA13/58)
Turbo-alternators
(LA15/109)
Tyro mechanician
(LJ69/215)
Uncertainty Principle
(LJ18/27)
Union jealousies
(LA4/164)
University courses

(LJ13/52)
University honours courses (LB11/73)
University road (LG58/49)
US Air Force (LG55/162)
Vallard penalty (LA22/71)
Victoria and Albert Museum (LA13/256)
Village green (LB5/92)
Wage pause policy (LB9/49)
War Denmark (LG53/51)
Waste-paper basket (LB9/97)
Wax emulsions (LJ70/139)
Wedgwood Benn affair (LB8/40-41)
Wembley final (LA22/205)
Westminster Hospital (LJ15/150)
Window dressing (LB6/208)
Winter sky (LK5/198)
Women slaves (LG54/120)
World class (LA22/193)
World peace

Energy Authority (LJ15/165)
University life (LB16/87)
University sermon (LB16/91)
US Army (LG55/159)
Value test (LB23/166)
Victoria Infirmary (LJ15/70)
Village stalwarts (LB5/88)
Wagon Company (LA16/183)
War guilt (LG55/113)
Water thickness (LJ15/130)
Weather story (LG54/52)
Weekend talks (LA4/90)
Wembley Stadium (LA22/6-7)
Whitechapel tailor (LA9/162)
Window-cleaning business (LA12/118-119)
Winter sports (LA9/51)
Woosnam Soccer technique (LA22/142-143)
World crown (LA22/228)
World Speedway Surprise

(LB16/91)
University mathematicians (LB11/89)
University teacher (LG55/52)
US Correspondent (LA15/179)
Vaudeville Theatre (LA9/87)
Vienna outcome (LA4/62)
Vitamin tablets (LB14/116)
Wagon take-over (LA16/181)
War Memorial Hospital (LJ15/108-109)
Waterloo pupils (LB23/188)
Wedding cake (LK26/10)
Welfare Council (LG57/15)
Wesley Hall (LK24/140)
Wicket stand (LB11/64-65)
Window-sill (LK21/67)
Wolfenden Committee (LG57/56-57)
World Champion (LA22/15)
World customs (LG54/16)
World tension

(LB9/183)
University newspaper (LB16/70)
University years (LG58/119)
US Government (LA205)
Vegetable-bags (LK21/26)
Vienna talks (LA4/58)
Voltage source (LJ69/74)
Walkden House (LB11/62)
War years (LJ14/91)
Waterloo School (LB23/177)
Wedding present (LA9/219-220)
Welfare State (LB14/5)
West Burton power station (LA15/99)
Wimbledon and New Zealand star (LA22/197)
Wine-bottles (LK21/26)
Wolfenden principle (LG57/18)
World championship (LA22/190)
World disarmament (LB23/25)
World title

(LB11/101)
University people (LG58/85)
Urine testing and weighing (LJ14/111)
US recovery (LA15/178)
Veterinary surgeon (LK23/42)
Village festa (LG54/18-19)
Wage pause (LB9/51)
War alliance (LB6/108)
War-criminal status (LG55/147)
Water-phantom measurements (LJ15/30)
Wedding-dress (LA9/227)
Welwyn Garden City (LB9/195)
Westinghouse Quadrocondex machine (LJ15/44)
Wimbledon champion (LA9/210)
Winter holidays (LA9/54)
Wolfenden Report (LG57/4-5)
World Championship Speedway (British) Final (LA22/5-6)
World Finals (LA22/33)
World War

(LA13/192)	(LA22/3)	(LB23/24)	(LA22/192)	(LG55/114)
X-ray density	X-ray generator	X-ray photograph	X-ray set	Yard-arm
(LJ70/172)	(LJ15/146)	(LK26/16)	(LJ15/37)	(LK2/69)
Year basis	Yeoman service	Yorkshire combine	Youth training	Zero area
(LB7/150)	(LK26/11)	(LA16/34)	(LB6/203)	(LJ15/55)

N+N STRUCTURES IN WRITTEN AMERICAN ENGLISH II (FROWN CORPUS, 1990)

Abduction cases (FRA23/41)	Abortion foes (FRB7/190)	Abortion opponents (FRB7/180)	Abortion rights (FRB7/159)	Absorption lines (FRJ2/148)
Abundance information (FRJ2/98)	Acceptance speech (FRB6/3)	Acceptor AG (FRJ16/198)	Accident 'precursors' (FRJ79/215)	Accretion disk (FRJ7/73-74)
Accretion disk theory (FRJ7/172-173)	Accretion flows (FRJ7/45)	Accretion process (FRJ7/172)	ACE inhibitors (FRB25/186-187)	Acid days (FRK2/2)
Action Committees (FRG10/31)	Action program (FRB21/9-10)	Adenylate cyclase activity (FRJ15/137)	Adirondack chair (FRK1/16)	Administration official (FRA5/103)
Adult party (FRK3/3)	Adult supervision (FRG4/54)	Advocacy program (FRB13/102)	AEC program (FRJ79/110)	AFL-CIO affiliates (FRG10/5)
Afternoon chill (FRG4/41)	Afternoon hunt (FRG4/63)	Afternoon meeting (FRG6/49)	Agarose gel (FRJ16/113)	Agriculture credits (FRA1/133)
Aid airlift (FRA5/182-183)	Aid dollars (FRG6/188-189)	AIDS ad (FRB21/193)	AIDS carriers (FRB13/99-100)	AIDS Foundation (FRB21/203)
Air conditioning (FRA28/174)	Air domination (FRA16/1)	Air Force Chief (FRG6/29)	Air Force fighters (FRA5/107)	Air patrols (FRA5/126)
Air quality (FRB7/64-65)	Air standards (FRB7/92)	Aircraft carrier (FRA5/105)	Airline crews (FRK2/9)	Alameda County (FRA23/9)
Alaska (National) Park lands (FRB25/87)	Alaska region (FRB25/79)	Alcohol tests (FRB24/236)	Ale bread soup (FRG14/190-191)	Alfalfa tonic (FRG7/208)
Aluminium siding (FRK1/24)	Amber bottles (FRG7/26)	Amino acid sequence homology (FRJ16/48-49)	Amplification products (FRJ16/110-111)	Amway salesman (FRK26/4)
ANC leader (FRB9/18)	ANC militants (FRB9/10)	Animal models (FRJ15/24)	Animal protein (FRJ13/173)	Animation show (FRB13/16)
Ankle sprain (FRA16/236)	Anti-AIDS ad (FRB21/193)	Anti-CALLA antibodies (FRJ14/174)	Antigay bias (FRB27/27)	Anti-Gulf War effort (FRB27/81)
Anti-inflation credentials (FRG2/210)	Anti-minority message (FRG10/147)	Anti-Quayle slogans (FRA1/202)	Anti-Vietnam War protest (FRA1/141)	Antiwar marchers (FRG10/60)
Anti-war protest (FRA1/146)	AP Basketball Writer (FRA19/114)	AP Sports Writer (FRA19/3)	Apartment building (FRK1/9)	Appeals court (FRG6/215-216)
Appendix operation (FRA24/119)	Aqua earrings (FRK25/73)	Area counts (FRJ1/69)	Area economy (FRA34/215)	Area residents (FRB5/90)
ARENA party	Arkansas governor	Arm rings	Armor galleries	Arms embargo

(FRG6/60) (FRA5/52-53) (FRB25/104) (FRG4/147) (FRB9/122)
Arms sales Army Chief Army communiqué Army newspaper Army officers
(FRB21/244) (FRG6/24) (FRG6/84-85) (FRA5/125) (FRG6/55)
Art historians Artist friend Arts Administrator Arts Council Assessment district
(FRG14/25) (FRG7/120-121) (FRA23/109) (FRK5/144) (FRA30/121)
Associate members Associated Press Writer Atlacatl Battalion Atlacatl fighters Atlanta Braves reliever
(FRG10/209) (FRA19/177) (FRG6/194-195) (FRG6/206) (FRA19/231-232)
Atlanta Sports Wire Atlantic City charm bracelet AUG start codons Auto parts yard Automobile perks
(FRA19/230) (FRK25/165) (FRJ16/65) (FRA28/109) (FRB21/127)
Avant-garde avenues B sequence star B lymphocyte progenitors Baby Kerri case Back-ache
(FRG14/50) (FRJ7/51) (FRJ14/236) (FRA23/1) (FRG7/64)
Backyard industry Band center Band director Band intensity Band intensity measurements
(FRB21/16-17) (FRJ2/21) (FRG1/24) (FRJ2/15-16) (FRJ2/54)
Band intensity values Band rotation Band values Bank America Corp. Barbecue grill
(FRJ2/244) (FRJ2/201) (FRJ2/56) (FRA34/21-22) (FRA28/168)
Bargain hunters Barn party Barrington campus Barry scandal Baseball football and basketball
(FRA34/68) (FRG1/51-52) (FRK1/2) (FRA24/62) teams (FRK26/21)
Basement window Basketball hoop Bath application Battle stations Bay Area economy
(FRK26/102) (FRK1/26) (FRJ15/209) (FRK4/51) (FRA34/220)
Bay Area restaurants Bay restaurants Bazin regime BB gun Beachfront Decision
(FRA23/99) (FRA23/94) (FRB23/16) (FRG4/53) (FRB24/37)
Beachfront lots Beckman Microgenie software Bed rest Bedroom door Bedroom window
(FRB24/51) package (FRJ16/126-127) (FRB25/144) (FRK5/28) (FRK28/53-54)
Beijing government Bell hop Bellwether rate Beltrami differentials Belvidere teachers
(FRB6/198) (FRK29/101) (FRA34/186) (FRJ20/153) (FRA30/198)
Beta blockers Bimbo eruptions Biotech companies Biotech firms Birth control
(FRB25/188) (FRB23/74) (FRA34/230) (FRA34/216) (FRB7/207)
Birth trauma Blaisdell Street Blast counts Blister packs Blood bath
(FRG1/98-99) (FRA30/141) (FRJ14/15) (FRG7/28) (FRB25/112-113)
Blood cell count Blood cells Blood pressure Blood pressure level Blood pressure management
(FRJ14/14) (FRJ14/215) (FRB25/186) (FRB25/195) (FRB25/184)
Blood stain Blood tests Blood-brain barrier Board chairman Board members
(FRG4/74) (FRG7/156) (FRJ14/122) (FRB7/150-151) (FRA30/198)
Board vote Bocce games Body problem Body tissues Boer War
(FRB7/189) (FRA24/238) (FRJ7/141) (FRJ15/36) (FRG11/97)
Bone comparison Bone composition Bone contamination Bone joint Bone marrow

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N+N STRUCTURES IN SPOKEN AMERICAN ENGLISH (CSPAE CORPUS)

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Accessibility thing (COMM797)	Account number (FACMT97)	Action office (FACMT97)	Addition recommendation (FACMT97)	Administration Information Services (FACMT97)
Administration Information Systems (FACMT97)	Admission Director (FACMT97)	Admission policy (FACMT97)	Admissions Office recruitment efforts (FACMT97)	Admissions studies (FACMT97)
Advocacy text (COMM797)	Affairs Office (FACMT97)	Age group (FACMT97)	Agenda Committee (FACMT97)	Aid Administrator (FACMT97)
Aid Director (FACMT97)	Aid programs (FACMT97)	Algebra function strand (COMM797)	Algebra group (COMM797)	Algebra strand (COMM797)
Alumni Association (FACMT97)	Alumni survey (FACMT97)	Answer choice (COMM797)	Apartment living (FACMT97)	Appeals process (FACMT97)
Applicant pool (FACMT97)	Area universities (FACMT97)	Art space (FACMT97)	Assessment items (COMM797)	Assessment piece (FACMT97)
Assessment standards (COMM797)	Assessment tool (FACMT97)	Assistant coach (FACMT97)	Assistant professor (FACMT97)	Associates degrees (FACMT97)
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Bakke ruling (FACMT97)	Ballot boxes (FACMT97)	Bank cards (FACMT97)	Bar graphs (COMM797)	Basketball coach (FACMT97)
Beer drinkers (FACMT97)	Bell distribution (FACMT97)	Big-name coach (FACMT97)	Blood bank (FACMT97)	Board (of Governors) decision (FACMT97)
Board rooms (FACMT97)	Bold face (COMM797)	Bold ideas (COMM797)	Bold print (COMM797)	Bold statements (COMM797)
Bond issues (FACMT97)	Bottom paragraph (FACMT97)	Boundary condition (COMM797)	Braille readers (COMM797)	Braille version (COMM797)
Brooklyn College (FACMT97)	Buckley Amendment (FACMT97)	Budget and priority allocation/reallocation (FACMT97)	Budget committee allocation (FACMT97)	Budget deficit (FACMT97)
Budget shortfalls (FACMT97)	Burch Fellows (FACMT97)	Bus pass (COMM797)	Bus tour (FACMT97)	Business education (FACMT97)
Business school (advisory) committee (FACMT97)	Business School (FACMT97)	Business stuff (COMM797)	Calendar Committee (FACMT97)	Calendar expert (FACMT97)
Calendar year	Campus activities	Campus data bases	Campus dialogue	Campus experiences

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Campus plan
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Career interests
(FACMT97)
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(FACMT97)
Cement question
(COMM797)
Chapel Hill
(FACMT97)
Character examples
(COMM797)
Civic Responsibility group
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Classroom environment
(COMM797)
Climate fund
(FACMT97)
Coach retiring
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College Access
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College students
(COMM797)
Committee recommendation
(COMM797)
Communication studies
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(COMM797)
Computer screen
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Campus Police
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Chart paragraph
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Class experience
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Carnegie Mellon University
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Carolina student body
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sophomores (FACMT97)
Christmas decorations
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College faculty people
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Content strand descriptors (COMM797)	Conversation starter (FACMT97)	Conversion files (FACMT97)	Count data (COMM797)	Course development funds (FACMT97)
Court actions (FACMT97)	Court rulings (FACMT97)	Crisis mode (FACMT97)	Cross walk (COMM797)	Culture clash (COMM797)
Curricula topics (COMM797)	Curriculum (sensitive) items (COMM797)	Curriculum dependency (COMM797)	Curriculum design (COMM797)	Data analysis (COMM797)
Data analysis statistics (COMM797)	Data area (COMM797)	Data bases (FACMT97)	Data points (COMM797)	December commencement (FACMT97)
December meeting (FACMT97)	Decision rule (COMM797)	Definition list (COMM797)	Denver meeting (COMM797)	Department (of Agriculture) funding (FACMT97)
Department chairmen (FACMT97)	Department chairs (FACMT97)	Department head (FACMT97)	Department practices (FACMT97)	Deputy Commissioner (COMM797)
Development contract (COMM797)	Development formulas (COMM797)	Development items (COMM797)	Development office (FACMT97)	Development plans (FACMT97)
DIF analysis (COMM797)	Difficulty issue (COMM797)	Dinner table (FACMT97)	Discussion and implementation phase (FACMT97)	Discussion groups (FACMT97)
Discussion papers (FACMT97)	Discussion parts (COMM797)	Distance education (FACMT97)	Distance learning (FACMT97)	Division IA (FACMT97)
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Duke example (FACMT97)	Dupe-proof (FACMT97)	Durham Scholars Program (FACMT97)	Duty (conceptual) understanding (COMM797)	Education and assessment people (COMM797)
Education field (COMM797)	Education foundation (FACMT97)	Education reform (COMM797)	Education students (COMM797)	Education verbiage (COMM797)
Elite education (FACMT97)	Elite fraction (FACMT97)	Elite institutions (FACMT97)	E-mail address (FACMT97)	Emphasis program (FACMT97)
Employee Forum (FACMT97)	End products (FACMT97)	End section (COMM797)	End-point events (FACMT97)	English and Communication Studies (FACMT97)
English classes (COMM797)	English courses (FACMT97)	English dialects (FACMT97)	English proficiency groups (COMM797)	English proficiency students (COMM797)
Entertainment industry (FACMT97)	Entry level (FACMT97)	Equity issue (COMM797)	Equity reasons (COMM797)	Estate developers (FACMT97)
Evaluation perspective (FACMT97)	Exam design (COMM797)	(Executive) Committee Council (FACMT97)	Expansion budget money (FACMT97)	Expansion money (FACMT97)

Face validity (COMM797)	Face validity aspect (COMM797)	Facility issue (FACMT97)	Fact domain (COMM797)	Faculty action (FACMT97)
Faculty and graduate students (FACMT97)	Faculty and staff members (FACMT97)	Faculty appointments (FACMT97)	Faculty assembly (FACMT97)	Faculty Athletics Committee (FACMT97)
Faculty attitudes (FACMT97)	Faculty bus tour (FACMT97)	Faculty candidates (FACMT97)	Faculty colleagues (FACMT97)	Faculty compensation (FACMT97)
Faculty concerns (FACMT97)	Faculty consultant (FACMT97)	Faculty Council (FACMT97)	Faculty council meeting (FACMT97)	Faculty culture (FACMT97)
Faculty discussion (FACMT97)	Faculty Governance office (FACMT97)	Faculty Grievance Committee (FACMT97)	Faculty groups (FACMT97)	Faculty Hearings Committee (FACMT97)
Faculty hires (FACMT97)	Faculty input (FACMT97)	Faculty involvement (FACMT97)	Faculty issues (FACMT97)	Faculty lines (FACMT97)
Faculty meeting (FACMT97)	Faculty member (FACMT97)	Faculty members time (FACMT97)	Faculty participation (FACMT97)	Faculty person (FACMT97)
Faculty personnel (FACMT97)	Faculty position (FACMT97)	Faculty processes (FACMT97)	Faculty report (FACMT97)	Faculty Roles and Rewards (FACMT97)
Faculty Roles and Rewards group (FACMT97)	Faculty salaries (FACMT97)	Faculty source (FACMT97)	Faculty Staff (FACMT97)	Faculty student group (FACMT97)
Faculty teaching portfolios (FACMT97)	Faculty technology projects (FACMT97)	Faculty Welfare (FACMT97)	Faculty/student forum (FACMT97)	Fall semester (FACMT97)
Family (of items) idea (COMM797)	Family commitments (FACMT97)	Family Education Rights (FACMT97)	Family/community thing (FACMT97)	Fax machine (COMM797)
February deadline (FACMT97)	Fellows programs (FACMT97)	Fellowship support (FACMT97)	Field education (FACMT97)	Field research (FACMT97)
Field trips (FACMT97)	Focus group (FACMT97)	Focus paragraph (COMM797)	Food stuff (FACMT97)	Footage requirements (FACMT97)
Football coach (FACMT97)	Football players (FACMT97)	Formulas list (COMM797)	Forsyth County (FACMT97)	Fractions item (COMM797)
Frame setting stuff (COMM797)	Framework document (COMM797)	Frank Porter Graham lecture (FACMT97)	Franklin Street (FACMT97)	Fraternity activities (FACMT97)
Fraternity and sorority rushes (FACMT97)	Fraternity incident (FACMT97)	Fraternity prank (FACMT97)	Frequency specification (COMM797)	Freshman attrition (FACMT97)
Freshman seminar (FACMT97)	Freshman year (FACMT97)	Freshmen honors courses (FACMT97)	Freshmen retention (FACMT97)	Freshmen retention data (FACMT97)
Freshmen seminar context (FACMT97)	Freshmen seminar program (FACMT97)	Freshmen seminar series (FACMT97)	Freshmen teaching (FACMT97)	Freshmen year (FACMT97)

Front paragraph (COMM797)	Functions problem (COMM797)	Fund raising (FACMT97)	Fund raising affair (FACMT97)	Geometry chapters (COMM797)
Geometry formulas (COMM797)	Geometry lesson (COMM797)	Germany, American and Japanese classroom (COMM797)	Glass ceiling (FACMT97)	Governance process (FACMT97)
Government leaders (FACMT97)	Grade inflation (FACMT97)	Grade level (COMM797)	Grade notifications (FACMT97)	Grade point standards (FACMT97)
Graduate admissions tests (FACMT97)	Graduate course (FACMT97)	Graduate education (FACMT97)	Graduate mentors (FACMT97)	Graduate research mission (FACMT97)
Graduate school (COMM797)	Graduate student support (FACMT97)	Graduate student/mentor (FACMT97)	Graduate study (FACMT97)	Graduate work (FACMT97)
Graduation rates (FACMT97)	Graduation weekend (FACMT97)	Graham Memorial (FACMT97)	Group areas (FACMT97)	Group discussions (FACMT97)
Group facilitation (FACMT97)	Guest speakers (FACMT97)	Handicap accesses (FACMT97)	Hawthorne effect (FACMT97)	Health affairs (FACMT97)
Health Affairs component (FACMT97)	Health care (FACMT97)	Health science fields (FACMT97)	Health Sciences Library (FACMT97)	Hearings committee (FACMT97)
Heart attack (FACMT97)	High school graduates (FACMT97)	High-tech companies (FACMT97)	Histogram order (COMM797)	Hog farm (FACMT97)
Hogs and hens problem (COMM797)	Home page (FACMT97)	Honors courses (FACMT97)	Honors program (FACMT97)	Honors program expertise (FACMT97)
Hot dog and bun problem (COMM797)	Humanities voice mails (FACMT97)	(Human) Resource System (FACMT97)	(Human) Resources Division (FACMT97)	Ice cream (COMM797)
Ice cream flavors (COMM797)	Identification numbers (FACMT97)	Implementation phase (FACMT97)	Implementation steps (FACMT97)	Inclusion issues (COMM797)
Information content (FACMT97)	Information item (FACMT97)	Information systems (FACMT97)	Information technology (FACMT97)	Initiative type (FACMT97)
Inquiry track expertise (FACMT97)	Institute (for Arts and Humanities) building (FACMT97)	Instruction part (COMM797)	Internet (marketing) courses (FACMT97)	Internet tier (FACMT97)
Interpretation issue (COMM797)	Item accessibility (COMM797)	Item bank (COMM797)	Item bias (COMM797)	Item bias issue (COMM797)
Item development (COMM797)	Item measures (COMM797)	Item specifications (COMM797)	Item story (COMM797)	Item type (COMM797)
Item writer (COMM797)	January meeting (FACMT97)	Jazz concert (FACMT97)	Job titles (FACMT97)	Johnston seminar expertise (FACMT97)

Junior type (FACMT97)	Kenan Flagler Business School (FACMT97)	Kenan Institute (FACMT97)	Kenan offers (FACMT97)	Kenan Professors (FACMT97)
Knowledge base (COMM797)	Knowledge cell (COMM797)	Knowledge questions (COMM797)	Knowledge things (COMM797)	Kressge Foundation (FACMT97)
Land grant (FACMT97)	Language family (FACMT97)	Language features (COMM797)	Language groups (COMM797)	Language minority issues (COMM797)
Language version (COMM797)	Law School (FACMT97)	Leadership curriculum (FACMT97)	Leadership development (FACMT97)	Leadership position (FACMT97)
Leadership programs (FACMT97)	Lecture room (FACMT97)	Lecture series (FACMT97)	Lecturers Committee (FACMT97)	Lenoir Hall (FACMT97)
Lenoir Hall renovation (FACMT97)	Liability coverage (FACMT97)	Liability problem (FACMT97)	(Liberal) arts education (FACMT97)	Library acquisitions (FACMT97)
Library card (FACMT97)	Library function (FACMT97)	Library funding (FACMT97)	Library investments (FACMT97)	Library materials (FACMT97)
Library technology (FACMT97)	Life initiative (FACMT97)	Life skills (FACMT97)	Lifetime university (FACMT97)	Line graphs (COMM797)
Linguistics Program (FACMT97)	Lunch table (FACMT97)	Machine score (COMM797)	Macro-economics business course (FACMT97)	Madison Hotel meeting (COMM797)
Madison meeting (COMM797)	Management difficulties (FACMT97)	Management problems (FACMT97)	Management structure (FACMT97)	Manufacturer apparel (FACMT97)
Market share (FACMT97)	Market wages (FACMT97)	Maryland (public) schools (COMM797)	Master (of public health) program (FACMT97)	Masters degree (FACMT97)
Math community (COMM797)	Math competency test (COMM797)	Math deficiency test (COMM797)	Math Department Chair (COMM797)	Math level (COMM797)
Math people (COMM797)	Math strand (COMM797)	Math test (COMM797)	Mathematics education (COMM797)	Mathematics test (COMM797)
MBA degree (FACMT97)	MBA program (FACMT97)	Meal purchases (FACMT97)	Measurement section (COMM797)	Measurement strand (COMM797)
Measurement topics (COMM797)	Mecklenburg County (FACMT97)	Media contract (FACMT97)	Middle school curriculum (COMM797)	Middle school mathematics (COMM797)
Middle school mathematics person (COMM797)	Mid-year commencement (FACMT97)	Minority school systems (FACMT97)	Minority students (FACMT97)	Mission statements (FACMT97)
Model template (FACMT97)	Morehead fellow (FACMT97)	Morehead Scholar (FACMT97)	Morehead Scholarship Program (FACMT97)	Multiple Choice item (COMM797)
Multiple Choice option (COMM797)	Multiple Choice questions (COMM797)	Music students (FACMT97)	NAEP bullets (COMM797)	NAEP description (COMM797)

NAEP discussion (COMM797)	NAEP example (COMM797)	NAEP framework (COMM797)	NAEP instruments (COMM797)	NAEP items (COMM797)
NAEP list (COMM797)	NAEP strand (COMM797)	NAEP text (COMM797)	NAEP thing (COMM797)	NC Live (FACMT97)
NCAA Division IA institutions (FACMT97)	NCAA regulations (FACMT97)	NCN assessment standards (COMM797)	New York Times (FACMT97)	News articles (FACMT97)
News item (FACMT97)	News magazines (FACMT97)	NIH funding (FACMT97)	NIH grants (FACMT97)	Nike arrangement (FACMT97)
Nike Awareness Campaign (FACMT97)	Nike contract (FACMT97)	Nike issue (FACMT97)	Nike swoosh (FACMT97)	Nobel Prize (FACMT97)
Non-alcohol bash (FACMT97)	Non-routine shape (COMM797)	North Carolina Humanities Council (FACMT97)	North Carolina State (FACMT97)	November meeting (COMM797)
NSF (available) data (FACMT97)	Number group (COMM797)	Number theory (COMM797)	Officer Swain case (FACMT97)	Officer Swain issue (FACMT97)
Opportunity people (FACMT97)	Orange County (COMM797)	Organization chart (FACMT97)	Organization involvement (FACMT97)	Outcome research (FACMT97)
Pages thing (COMM797)	Paper generators (FACMT97)	Parameter examples (COMM797)	Peach-gold sky (FACMT97)	Peer institutions (FACMT97)
Peer review (FACMT97)	Peer review process (FACMT97)	Performance comparisons (FACMT97)	Performance platforms (FACMT97)	Performance scores (COMM797)
Personnel file (FACMT97)	Personnel issues (FACMT97)	Personnel procedures (FACMT97)	Perspective requirements (FACMT97)	Pharmacy building (FACMT97)
Phoenix University (FACMT97)	PID conversion (FACMT97)	PID number (FACMT97)	Pie charts (FACMT97)	Pill Hill (FACMT97)
Pit area (FACMT97)	Placement test (COMM797)	Pledge class competition (FACMT97)	Police department (FACMT97)	Policy advice (FACMT97)
Policy Committee (FACMT97)	Policy directions (FACMT97)	Policy question (COMM797)	Population size (COMM797)	Post-Discharge Hearings Procedure Resolution (FACMT97)
Post-graduate programs (FACMT97)	Post-tenure review (FACMT97)	Post-tenure review policy (FACMT97)	Post-Tenure Review Policy and Procedures (FACMT97)	Press conference (FACMT97)
Press Panel (COMM797)	Prestige Scholarships (FACMT97)	Priority item (FACMT97)	Priority list (COMM797)	Priority things (FACMT97)
Privacy Act (FACMT97)	Privacy rights (FACMT97)	Probability statement (COMM797)	Probability topic (COMM797)	Problem areas (FACMT97)
Problem or formula list	Problem situations	Problem solving	Problem solving items	Process rights

(COMM797)	(COMM797)	(COMM797)	(COMM797)	(FACMT97)
Process statements	Production-quality studios and	Proficiency group	Program topics	Progress report
(COMM797)	coaches (FACMT97)	(COMM797)	(COMM797)	(FACMT97)
Proportionality (kind of) test	Proportionality item	Provost office	(Public) Health degree	(Public) Health officials
(COMM797)	(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)
(Public) Health (kinds of)	(Public) Service center	Quality (imaginative) thinking	Quality control	Quality instruction
sciences (FACMT97)	(FACMT97)	(COMM797)	(COMM797)	(FACMT97)
Quality standards	Question and answer period	Radio shows	Raleigh Area Development	Rams Club counterpart
(FACMT97)	(FACMT97)	(FACMT97)	Council (FACMT97)	(FACMT97)
Range size	Rate formula	(Real)-life circumstance	(Real) world problems	(Real) world situations
(COMM797)	(COMM797)	(COMM797)	(COMM797)	(COMM797)
Reasonableness aspect	Record identifier	Reference frame	Registration period	Registration process
(COMM797)	(FACMT97)	(COMM797)	(FACMT97)	(FACMT97)
Report task	Research and graduate mission	Research areas	Research capability	Research dollars
(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Research excellence	Research funding	Research institution	Research library group	Research literature
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Research mission	Research opportunities	Research program	Research responsibilities	Research support
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Research topic	Research Triangle Corporations	Research university	Residence area	Residence hall registration
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	contract (FACMT97)
Residence halls	Residence life	Resource angle	Resource base	Response fashion
(FACMT97)	(FACMT97)	(FACMT97)	(COMM797)	(COMM797)
Response items	Response nature	Retention efforts	Retirement years	Revenue sports
(COMM797)	(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)
Reversion position	Review process	Reward structure	Reward system	Rhodes application
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Rhodes awardees	Rhodes candidates	Rhodes Scholarships	Rotation schedule	Rote way
(FACMT97)	(FACMT97)	(FACMT97)	(COMM797)	(FACMT97)
Routine practice	SACS reaccredidation study	SACS report	Sailplane flights	Salary increases
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Salary policies	Salary support	Sample item	Sample locket	Sample student responses
(FACMT97)	(FACMT97)	(COMM797)	(COMM797)	(COMM797)
Sample test	SAT exams	Scholarship programs	School (of Social Work)	School development
(COMM797)	(FACMT97)	(FACMT97)	building (FACMT97)	(FACMT97)
School district	School issues	School leadership	School libraries	School people

(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
School subjects	School systems	School year	Science class	Search policy
(FACMT97)	(FACMT97)	(COMM797)	(COMM797)	(FACMT97)
Selection committee	Self Study	Seminar component	Seminar option	Seminar program
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Seminar question	Senior honors programs	Service activities	Service learning	Service learning course
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Side table	Size population	Slide presentation	(Social) security card number	(Social) security number
(FACMT97)	(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)
Solution sets	Sophomore students	Sophomore year	Space group	Space issues
(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Spangler Family Dinner	Specs book	Specs form	Spell check	Spell checker
(FACMT97)	(COMM797)	(COMM797)	(COMM797)	(COMM797)
Spring semester	Staff development	Staff members	Standards (Writing) Group	Standards Reference Exam
(FACMT97)	(COMM797)	(FACMT97)	(COMM797)	(COMM797)
State access initiative	State appropriation	State assessment	State budget	State Employees Credit Union
(FACMT97)	(FACMT97)	(COMM797)	(FACMT97)	(FACMT97)
State government	State holiday	State laws	Steak and lobster dinner	Stem and leaf box
(FACMT97)	(FACMT97)	(COMM797)	(COMM797)	(COMM797)
Stress management skills	Student (financial) aid and	Student (judicial) process	Student affairs	Student affairs area
(FACMT97)	facilities (FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Student affairs folks	Student Aid	Student applicants	Student body	Student body leadership
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Student culture	Student development (kinds of)	Student evaluation	Student experience	Student fund raising campaign
(FACMT97)	issues (FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Student government	Student honor system	Student learning	Student learning outcomes	Student learning team
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Student liaison	Student life	Student organizations	Student population	Student questionnaires
(FACMT97)	(FACMT97)	(FACMT97)	(COMM797)	(FACMT97)
Student responses	Student satisfaction	Student success	Student union	Student wage increases
(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Student/faculty fora	Student/faculty interaction	Student/faculty ratio	Student/teacher ratio	Students (prior) experiences
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(COMM797)
Study interests	Study skills	Subject area	Substitution resolution	Summary dismissal
(FACMT97)	(FACMT97)	(COMM797)	(FACMT97)	(FACMT97)
Summary statements	Summer camps	Summer program	Summer reading	Summer reading program

(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Summer sessions	Sunset air	Survey results	Swan Creek Airport	Symbol sets
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(COMM797)
System equations	Tanner Award winner	Tar Heel reporters	Task force	Task force committees
(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Task force group	Task force report	Task force subcommittee	Taste (of the Arts) program	Tat/Turner/Kuralt building
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Tax revenue base	Teague Residence Hall	Team meeting	Team members	Technology (advisory)
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	committee (FACMT97)
Technology grants	Technology issue	Technology transfer	Telephone call	Television cameras
(FACMT97)	(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)
Television shows	Television stations	Tenure and promotion	Tenure and promotion decisions	Tenure process
(FACMT97)	(FACMT97)	considerations (FACMT97)	(FACMT97)	(FACMT97)
Tenure promotion	Tenure regulations	Tenure review procedures	Tenure track	Tenure track faculty person
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Tenure-track faculty	Test bias	Test blueprint	Test contractor	Test developer
(FACMT97)	(COMM797)	(COMM797)	(COMM797)	(COMM797)
Test developer contractor	Test development analysis	Test development contractor	Test development process	Test development sites
(COMM797)	(COMM797)	(COMM797)	(COMM797)	(COMM797)
Test grids	Test item developer	Test items	Test maker	Test materials
(COMM797)	(COMM797)	(COMM797)	(COMM797)	(COMM797)
Test Panel	Test panel document	Test program	Test publisher	Test specification side
(COMM797)	(COMM797)	(COMM797)	(COMM797)	(COMM797)
Test specifications	Test specs	Test time	Threshold statement	Time and stress management
(COMM797)	(COMM797)	(COMM797)	(COMM797)	(FACMT97)
Time constraints	Time factor	Time limit	Time line	Time management
(COMM797)	(COMM797)	(COMM797)	(COMM797)	(FACMT97)
Time recommendation	Time thing	Tobacco farm	Topic category	Topic sections
(COMM797)	(COMM797)	(FACMT97)	(COMM797)	(COMM797)
Topic strands	Town and gown relations	Tow-release	Track record	Traffic cop
(COMM797)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Transition issues	Transition period	Triangle area	Trick (kind of) choice answer	Trustee policies
(FACMT97)	(FACMT97)	(FACMT97)	(COMM797)	(FACMT97)
Trustee policies paragraph	Tuesday exam period	Tuition increases	Tuition revenue increase	Type camera
(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)	(FACMT97)
Umbrella organization	UNC community	UNC delegation	UNC home page	UNC-Chapel Hill

(COMM797)
UNC-Chapel Hill Chapter (FACMT97)
Undergraduate enrollment (FACMT97)
Undergraduate research experience (FACMT97)
Unit headings (COMM797)
University Access (FACMT97)
University citizenship (FACMT97)
University education (FACMT97)
University Government Committee (FACMT97)
University relations staff (FACMT97)
Variety ways (COMM797)
Wake Forest University (FACMT97)
Word matrixes (COMM797)
World university (FACMT97)

(FACMT97)
Undergraduate (educational) office (FACMT97)
Undergraduate Excellence (FACMT97)
Undergraduate research program (FACMT97)
Unitas program (FACMT97)
University administration (FACMT97)
University community (FACMT97)
University faculty (FACMT97)
University Housing (FACMT97)
University research (FACMT97)
Varsity football (FACMT97)
Washington (Higher) Education Commission (FACMT97)
Word processor (COMM797)
World view (FACMT97)

(FACMT97)
Undergraduate Admissions (FACMT97)
Undergraduate honors thesis research (FACMT97)
Undergraduate work (COMM797)
University (legal) counsel (FACMT97)
University budget (FACMT97)
University Day (FACMT97)
University faculty members (FACMT97)
University libraries (FACMT97)
University undergraduate experience (FACMT97)
Vassar College (FACMT97)
Web publishing (FACMT97)
Work auditorium (FACMT97)
X number (COMM797)

(FACMT97)
Undergraduate career (FACMT97)
Undergraduate instruction (FACMT97)
Underline rationale (COMM797)
University (of North Carolina) Fellows (FACMT97)
University Budget and Priorities Committee (FACMT97)
University Day Celebration (FACMT97)
University Fellow (FACMT97)
University President (FACMT97)
University unit (FACMT97)
Video footage (FACMT97)
Web site (COMM797)
Work responsibilities (FACMT97)

(FACMT97)
Undergraduate education (FACMT97)
Undergraduate library (FACMT97)
Unit head (FACMT97)
University (of Texas) model (FACMT97)
University chancellors and presidents (FACMT97)
University document (FACMT97)
University Government (FACMT97)
University Professors (FACMT97)
University-level education (FACMT97)
Voice mail (FACMT97)
Word factor (COMM797)
World experts (FACMT97)

N+N STRUCTURES IN SPOKEN BRITISH ENGLISH (ICE-GB CORPUS)

Aberystwyth grits (s1b6/111)	Abortion Act (slb60/17)	Acanthus leaves (s2a24/70)	Accident book (s2a67/128)	Accidents Prevention Unit (slb59/68)
Acquisition trail (s2a70/17)	Action plan (slb61/118)	Action programme (slb55/41)	Admission (treating) hospital (slb68/57)	Adoption studies (s1b3/181)
Advance payments (slb56/58)	Affidavit evidence (s2a63/16)	Afon Valley elderly people (slb56/37)	Alpha Challenge (s2a66/76)	Alpha motor neurons (s1b9/73)
Alteration work (slb69/116)	Angle collisions (s2a28/49)	Anti-discrimination legislation (slb62/115)	Arbitration award (s2a65/1)	Arbitration clause (s2a65/12)
Arbitration proceedings (s2a65/33)	Architecture room (s1b7/7)	Area excavation (s2a26/65)	Area manager (slb67/35)	Arrangement fee (slb61/98)
ASC Consultants (slb61/40)	Athens (National) Museum (s2a24/74)	Attendance notes (s2a69/60)	Autumn expenditure round (slb59/6)	Autumn statement (slb58/25)
Back injuries (s2a67/174)	Back pain (s2a67/176)	Background information (s2a29/3)	Background paintings (s1b8/167)	Back-hander deals (s1b5/39)
Bank statements (slb61/20)	Bank strategy (slb54/44)	Bankruptcy order (s2a69/59)	Bankruptcy petition (s2a69/3)	Bay Bridge (s2a25/56)
Beautician circuit (s2a61/111)	Beauty therapist (s2a61/111)	Beef intervention (slb56/58)	Biopsy business (s1b10/45)	Bird song (s1b3/10)
Block diagram (s2a30/98)	Blood pressure level (s1b4/279)	Blood pressure measurement (s1b4/273)	Blood pressure reading (s1b4/257)	Blood pressures (s1b4/229)
Blood vessels (s1b9/132)	Body shell (slb68/35)	Bone beds (s1b6/137)	Bone graft (s2a62/74)	Book review (s2a27/115)
Boot lights bumper (slb68/19)	Border country (s2a61/97)	Borders Special (s2a61/95)	Breast change (s1b10/133)	Brick masonry (s2a25/17)
Bumper lights (slb68/20)	Bunker mentality (s2a21/54)	Business administration (s2a26/6)	Business associate (s2a70/4)	Business combination (s1b5/24)
Business conditions (s1b5/166)	Business corporations (s1b5/1)	Business dealings (s2a70/16)	Business efficiency (s1b5/133)	Business interests (s2a26/48)
Business men (s1b5/20)	Business opinion (s2a23/70)	Business organisations (slb57/60)	Business security (s1b5/164)	Business studies (s2a26/6)
Business ties (s1b5/24)	Business trips (slb70/30)	Bypass schemes (s2a23/92)	Cabinet discussions (slb59/21)	Caffeine fix (s1b7/36)
Cairo area (s2a26/45)	Camouflage make-up (s2a62/124)	Cannabis plants (s2a68/94)	Cannes group (slb53/9)	Canon Films Sales (s2a63/42)

Capital expenditure plans (s2a23/94)	Capital spending (slb52/26)	Capital Stock Order (slb54/7)	Capital sum (s2a69/27)	Carbon dioxide (s1b7/237)
Cardinal Archbishop (slb60/1)	Career development (slb59/2)	Career potential (slb55/90)	Carlton Cleaning (slb64/69)	Cartilage implant (s2a62/55)
Case officer (s2a68/3)	Case summary (s2a68/7)	Cash flow (s2a23/24)	Cash spending (slb52/69)	Cast-iron case (s2a69/20)
Cat scratch (slb66/23)	Cell bodies (s1b9/116)	Cell Lung Cancer (s2a29/16)	Cell lung cancer patients (s2a29/30)	Cell tumours (s2a29/7)
Centre lane (slb68/43)	Channel Tunnel (s2a23/41)	Charge hand (s2a67/42)	Charter rate (s2a65/40)	Charterparty account (s2a65/53)
Cheek bone (s2a62/74)	Chief secretary (slb52/8)	Christmas island (slb51/90)	Church terms (s1b5/177)	Circuit board (s2a29/49)
Circuit design (s2a29/66)	Circuit designers (s2a29/56)	Circuit foundry (s2a29/58)	Clapham Academy (s2a26/9)	Closure motion (slb51/49)
Cloud Cuckoo land (slb53/35)	Coal mining commission (s2a26/31)	Coat hypertension (s1b4/291)	Coda exponents (s2a30/101)	College paper (s2a27/28)
Colour (composite) image (s2a29/86)	Colour satellite image (s2a26/77)	Colour values (s1b8/184)	Column capital (s2a24/55)	Community care (slb56/40)
Community care proposals (slb56/44)	Community document (slb54/13)	Community Matters (slb54/28)	Community membership (slb54/71)	Community ratification (slb54/66)
Companies House (slb51/153)	Company report (slb62/137)	Completion date (slb61/147)	Compromise solution (slb53/116)	Computer pay-rolls (slb58/34)
Concrete slabs (s2a25/27)	Consensus thinking (slb57/25)	Conservation area (s2a27/120)	Consideration shares (s2a70/78)	Conspiracy charge (slb63/130)
Construction industry (slb55/8)	Construction industry inflation index (s2a23/87)	Consultant anaesthetist (s1b10/72)	Consultant surgeon (slb68/45)	Consultation exercise (slb57/60)
Coral Sea Enterprises (s2a66/74)	Correlation themes (s1b6/199)	Cortina car (slb68/33)	Council decision (slb54/66)	County councils (s2a21/35)
Court case (s2a27/149)	Court circles (s2a26/19)	Court hearing (s2a27/138)	Cradle walls (s2a25/23)	Cream colour (s1b8/161)
Cross claims (s2a69/13)	Cross examination (s2a67/94)	Cross Hospital (slb68/57)	Crossword puzzle (s2a27/141)	Crowd reaction (s2a66/11)
Crown case (s2a68/16)	Crown counsel (s2a68/19)	Croydon College (slb62/32)	Cup width (s1b4/339)	Customs matter (slb63/36)
Customs officers (s2a68/4)	Customs solicitor (slb63/258)	Daddy bed (s1b3/51)	Damages claim (s2a64/48)	Data tapes (s2a28/73)

Day book (s2a67/178)
Debt repayment (slb52/15)
Deck columns (s2a25/99)
Deck freeway (s2a25/94)
Defamation cases (s2a63/2)
Default judgement (s2a69/24)
Defence counsel (s2a68/19)
Delivery pattern (slb64/84)
Delors report (slb53/90)
Depth information (s2a29/106)
Deputy (foreign) minister (slb60/99)
Deputy Speaker (slb51/2)
Design and safety factor (s2a25/45)
Design provisions (s2a25/59)
Design stages (s2a23/92)
Determiner noun (s1b2/244)
Development Council (slb57/24)
Diary cards (s2a29/25)
Diary entry (slb64/94)
Digit preference (s1b4/228)
Dinner time (s2a67/41)
Disc extrusion (slb68/131)
Disease patients (s2a29/12)
Dispatch box (slb53/48)
Distribution list (s2a28/117)
District Council (s2a63/41)
District health authority (slb56/16)
Dose intensity (s2a29/13)
Downing Street (s2a23/25)
Draft (European) Bank (for Reconstruction and Development) Subscription (slb54/7)
Draft Council decision (slb54/82)
Draft decision (slb54/73)
Draft orders (slb54/30)
Dress sense (s2a61/112)
Drinamyl tablets (s2a27/32)
Drug combination (s2a27/40)
Drug smuggling (slb63/28)
Drugs run (s2a68/106)
Ductility ratio (s2a25/43)
Earthquake damage (s2a25/3)
Earthquake energy (s2a25/67)
Earthquake engineering (s2a25/101)
Earthquake Engineering Investigation Team (s2a25/3)
Earthquake resistance (s2a25/12)
Earthquake resistance design (s2a25/3)
EC regulations (slb57/68)
Ecu proposal (slb53/20)
Edinburgh Festival showing (s2a64/46)
Education budget (slb52/25)
Education classes (slb62/45)
Education service (s2a22/2)
Education training (slb62/10)
EEC budget (slb54/80)
EEC capital subscription (slb54/80)
EEC nationals (slb59/40)
EEC proposal Document (slb54/8)
Egypt Exploration Society (s2a26/3)
EIB statute (slb54/70)
Election bribes (s2a22/89)
Electron collisions (s2a28/4)
Electron molecule interaction (s2a28/19)
Electron scattering (s2a28/43)
Electron scattering information (s2a28/14)
Electron spectrometer (s2a28/40)
Elevation information (s2a29/103)
EMA staff (slb57/82)
E-mail links (s2a28/73)
E-mail system (s2a28/76)
Embryo experimentation (slb60/52)
Embryo research (slb60/38)
Embryo transfer (slb60/44)
Employment (Medical Advisory) Service (slb57/85)
Employment (of Handicapped) Report (slb57/8)
Employment and education (training) needs (slb62/10)
Employment Consultants (slb62/11)
Employment training (slb57/52)
End (of year) accounts (slb65/120)
End customer (s2a29/60)
England World Cup football squad (slb59/14)
England World Cup team (slb59/18)
Enhancement policy (s2a27/122)
Enterprise councils (slb59/4)
Erskine May (slb51/158)
Essay title (s1b7/227)
Eucalyptus trees (s2a24/16)

(European) Commission (Social) Action Programme (slb57/32)	(European) Community countries (slb59/42)	(European) Community member states (slb54/34)	(European) Community nationals (slb59/42)	Evening excursions (slb67/101)
Evidence Act (s2a63/12)	Exam questions (s1b7/246)	Exchange Rate Mechanism (slb52/31)	Excursion programme (slb67/97)	Exercise addiction (s2a27/84)
Exercise centre (s2a27/92)	Exercise making (s2a27/67)	Exercise regimes (s2a27/115)	Expenditure round (slb52/87)	Expenditure settlement (slb52/7)
Expenditure totals (slb52/58)	Exponency effects (s2a30/90)	Exponency issues (s2a30/75)	Export industries (slb53/60)	Export markets (slb56/64)
Export subsidies (slb53/15)	Extension injury (slb68/68)	Extradition treaty (s2a64/66)	Eye socket (s2a62/47)	Eyewitness account (s2a22/8)
Face value (s1b5/16)	Factory machine (s2a67/14)	Failure modes (s2a29/44)	Family farm (slb56/85)	Family life (s2a27/88)
Farm incomes (slb56/49)	Farm support (slb56/50)	Fault rupture (s2a25/67)	(Federal) republic government (slb53/98)	Female Business Services (slb64/94)
Ferndale business (s2a70/26)	Ferndale company (s2a70/62)	Ferndale company accounts (s2a70/76)	Ferndale Group (s2a70/35)	Field day (s2a27/129)
Field projects (s2a26/51)	Finance Director (s2a70/4)	Fire escapes (slb67/43)	Flexion extension (slb68/121)	Flexion injury (slb68/64)
Flint stones (s1b6/233)	Floor extension (slb69/100)	Floor store (slb69/98)	Food processing (slb53/102)	Forest shales (s1b6/78)
Fork lift (s2a67/104)	Forklift truck (s2a67/7)	Fortress Europe (slb53/3)	Founder member (s2a26/18)	Front bench (slb51/73)
Gamma motor neurons (s1b9/62)	Gas beam (s2a28/40)	Gas stations (S1b5/110)	GATT negotiations (slb56/62)	GATT round (slb53/2)
Gibraltar Coroner (s2a63/27)	Government assistance (slb57/98)	Government power (slb56/31)	Grammar schools (s2a21/76)	Ground conditions (s2a67/36)
Ground level (s2a26/43)	Ground motions (s2a25/10)	Growth factor (s1b9/142)	Gulf crisis (slb60/85)	Head representative (slb67/14)
Headline rate (slb52/24)	Health and Safety Commission (slb55/13)	Health and Safety Commission and Executive (slb57/81)	Health and Safety Executive (slb55/6)	Health and Safety Executive and Commission (slb57/90)
Health authorities (slb56/18)	Health authority chairmen (slb56/4)	Health farm (s2a70/70)	Health Service (slb52/10)	Health Service hospitals (slb60/24)
Health spa (s2a61/110)	Health spending (slb52/84)	Heart attack (s2a62/109)	Heart wave (s2a27/34)	Height information (s2a29/109)
Heywood fault	Hill areas	Hire instalments	Hire provision	Holiday makers

(s2a25/84)
Home language (s1b3/148)
Hospital beds (slb56/27)
Houston (economic) summit (slb53/104)
Image correlation (s2a29/111)
Induction provision (slb62/47)
Insolvency Act (s2a69/3)
Insurance property banking (slb51/129)
Jaeger litigation costume (s2a27/133)
Jubilee Line extension (slb52/28)
Labour costs (slb57/45)
Lampitt shares (s2a70/78)
Law book (sib1/1)
Lecture notes (s1b7/1)
Life span (s2a29/23)
Livestock sector (slb56/48)
London Transport (s2a23/94)
Magnitude earthquakes (s2a25/73)
Maintenance man

(slb56/49)
Hong Kong Bill (slb59/34)
Host nation (slb54/45)
Ice packs (s2a62/16)
Impact speed (slb68/36)
Industry meeting (slb65/57)
Insurance company (s2a67/148)
Interest rates (slb52/98)
Job clubs (slb57/58)
Junk mail (s2a28/88)
Labour government (slb52/10)
Lanarkshire area (slb55/84)
Law courts building (s2a24/116)
Leisure time (s2a26/20)
Lily Hotel (s2a68/104)
Load cycle (s2a25/37)
London Underground (s2a23/99)
Mail bag (s2a27/147)
Majority answer

(s2a65/15)
Hong Kong citizens (slb59/37)
House (of Commons) Committee (slb54/9)
Icecap water (s1b7/165)
Importation charge (slb63/140)
Inertia force (s2a25/30)
Insurance company representative (s2a67/162)
Investment Bank (slb54/34)
Job creation (slb55/77)
Kent and Sussex Hospital (s2a62/21)
Labour market (slb62/149)
Language acquisition (s1b3/46)
Law Reports (s2a63/41)
Lever arch files (s2a63/77)
Linguistics text book (s2a30/81)
London Arbitration (s2a65/41)
Lunch hour lecture (s2a27/61)
Mainland Europe (s2a23/74)
Majority shareholdings

(s2a65/13)
Hong Kong nationals (slb59/29)
House magazine (slb60/70)
IFF Research (slb58/46)
Improvement Company (s1b5/118)
Injury disruption (slb68/67)
Insurance contributions (slb58/10)
Investment proposals (slb54/44)
Job interview guarantee scheme (slb57/58)
Knee cap (s2a67/81)
Labour Party (slb53/25)
Language communication (s1b3/102)
Layout technician (s2a29/58)
Levy type system (slb57/7)
Listener action (s2a64/54)
London area (slb64/73)
Lung cancer (s2a29/1)
Mainland Greece (s2a24/66)
Majority verdict

(slb67/7)
Hospital admissions (s2a29/21)
House members (slb51/119)
ILO Conventions (slb59/54)
Income tax cuts (slb52/20)
Injury section (slb68/45)
Insurance market (slb51/27)
IVF programme (slb60/48)
Jubilee Line (s2a23/99)
Labour benchers (slb55/74)
Labour party policy (slb55/66)
Laser radiation (s2a28/11)
League table (s2a21/31)
Life forms (s1b6/225)
Liverpool Crown Court (s2a68/13)
London Borough (slb59/7)
Lymph nodes (s1b10/88)
Maintenance drugs (s2a27/112)
Majority voting

(slb67/60)	(s2a61/45)	(slb54/69)	(s2a61/45)	(slb53/112)
Male infertility	Management action	Mandy Rice-Davis thing	Manulite property	Marble statue
(slb60/47)	(slb55/11)	(s2a21/116)	(slb69/185)	(s2a22/63)
Marble tiles	Marina district	Marker pencil	Market economies	Market rate
(s2a24/87)	(s2a25/87)	(s1b2/100)	(s2a23/71)	(s2a65/40)
Market share	Mass extermination	Mass extinction	Mass times acceleration effect	Media coverage
(s2a66/29)	(slb54/60)	(s1b6/193)	(s2a25/30)	(s2a27/146)
Media programmes	Member states	Memphis project	Midland bank	Milford Haven
(s2a64/13)	(slb54/69)	(s2a26/3)	(slb61/5)	(slb63/252)
Mill Road	Miniature version	Mogul type figure	Money terms	Monopoly position
(slb61/143)	(s2a24/75)	(s1b5/181)	(slb58/26)	(s2a66/29)
Monopoly type situation	Mortgage interest	Mortgage interest relief	Mortgage offer	Motion bill
(s1b5/136)	(slb52/39)	(slb52/21)	(slb61/159)	(slb62/118)
Motor cars	Motor output	Mountain belts	Mountain ridge	Mud brick
(slb63/126)	(s1b9/208)	(s1b6/140)	(s2a29/112)	(s2a24/79)
Mud brick walls	Multi-fibre arrangement	Multi-storey building	Muscle cells	Muscle spindle
(s2a24/84)	(slb53/50)	(s2a25/89)	(s1b9/98)	(s1b9/87)
Muscle tone	Name case	Name decision	Name guidelines	Name process
(s1b9/33)	(s2a66/64)	(s2a66/12)	(s2a66/57)	(s2a66/40)
Neck ring	Nerve damage	Nerve function	Nerve growth factor	Newnham South
(s2a22/63)	(s1b9/101)	(s1b10/38)	(s1b97187)	(slb54/10)
Night hours	Night painting	Night working	Night working restrictions	Nile alluvium
(slb57/69)	(s1b8/64)	(slb57/69)	(slb57/68)	(s2a26/51)
Nile delta	Nile valley	Non-oil exports	North Sea steel markets	North Wales coast
(s2a26/78)	(s2a26/38)	(s2a23/37)	(slb52/107)	(slb63/30)
Norwich area	Noun phrase	Nucleus exponents	Oakland freeway	Observer variation
(slb55/27)	(s1b2/102)	(s2a30/101)	(s2a25/93)	(s1b4/127)
Occupation sick-pay schemes	Ocean level line	Office diary	Office hours	Office-cleaning division
(slb58/60)	(s1b7/95)	(s2a70/9)	(s1b7/66)	(slb64/73)
Oil business	Oil companies	Oil exploration	Oil industry	Oil prices
(s1b5/18)	(slb52/76)	(slb53/102)	(s1b5/129)	(slb52/74)
Oil producers	Oil refiners	Oil revenues	Oncology Department	Onset exponents
(s1b5/129)	(s1b5/129)	(slb52/103)	(s2a29/1)	(s2a30/100)
Operation Ocean Man	Operation scar	Opiate addicts	Opportunities project	Opportunity policy
(slb63/229)	(s2a62/35)	(s2a27/110)	(slb62/128)	(slb62/164)
Order paper	Out-patients (waiting) list	Overseas development and	Overseas investment	Oxygen molecules

(slb54/3)
Ozone layer (s1b7/238)
Patients department (s2a62/48)
Pembrokeshire farmers (slb56/61)
Percentage terms (slb58/26)
Picture plane (s1b8/68)
Platinum leutopocide (s2a29/19)
Policy plain (slb57/27)
Post-war period (slb60/4)
Press report (slb56/74)
Priority programmes (slb52/68)
Property company (slb51/37)
Quotation marks (s2a21/22)
Rear damage (slb68/19)
Reconstruction painting (s2a22/42)
Regulations circulars (s2a21/25)
Report page (slb62/74)
Resolution models (s1b7/219)

(slb56/35)
Parrot cry (slb56/42)
Paul Hammond Trust (s2a21/42)
Pembury Hospital (s2a62/7)
Petrol stations (s1b5/110)
Picture representation (s2a29/81)
PLO leadership (slb60/92)
Policy Review staff (s2a23/48)
Pound sign (slb64/26)
Price margin (slb52/77)
Priority treatment (slb56/18)
Prospect looms (s2a23/69)
Race Relations Act (slb59/56)
Rear doors (slb68/28)
Record number (slb55/47)
Renaissance painter (s1b8/49)
Republic government (slb53/98)
Resort manager (slb67/45)

cooperation (slb54/1)
Party opposite (slb55/30)
Payments position (slb53/104)
Pen and colour-wash maps (s2a26/61)
Phone call (slb69/45)
Pixel rotation (s2a29/110)
Police matter (slb63/37)
Poll tax (slb52/50)
Pound sterling (slb53/38)
Price situation (s1b5/135)
Probability basis (s2a25/72)
Queen Victoria Hospital (s2a62/23)
Railroad rebates (s1b5/99)
Rear wall (slb69/81)
Recruitment campaign (slb55/6)
Renaissance palaces (s2a24/40)
Research colleagues (s2a30/9)
Retail wall (slb69/199)

(slb55/52)
Party wall (slb69/126)
Pearl Harbour (s2a22/28)
People skills (slb62/166)
Phoneme symbols (s2a30/81)
Placement scheme (slb57/5)
Police officer (s2a64/70)
Pollution levels and conditions (s1b7/199)
Pre-accident work (s2a62/33)
Prime time television (s2a23/12)
Profit margin (s2a66/23)
Question Time (s2a23/1)
Rain forest (s1b7/239)
Rearside panels (slb68/19)
Recruitment policy (slb55/9)
Repair work (s2a24/27)
Research purposes (slb60/22)
Retail wallpaper (slb69/202)

(s2a28/12)
Patient treatment (slb56/33)
Pedestal base (s2a26/72)
Percentage likelihood (s2a25/72)
Physics department (s2a28/2)
Plan view (s2a25/19)
Police unit (slb63/51)
Pool side (slb67/138)
Pregnancy termination (slb60/35)
Princess (of Wales) Hospital (slb56/7)
Prognosis Patients (s2a29/16)
Quota scheme (slb62/115)
Random zero device (s1b4/251)
Reconstruction and Development Immunities and Privileges Order (slb54/7)
Red Sea (Indian) ports (s2a65/11)
Replacement cigarette (slb66/21)
Research sources (s2a25/6)
Return wall (slb69/186)

Revenue support grant (slb56/42)
Revenue support system (slb56/41)
Rhyme exponents (s2a30/107)
Richter scale (s2a25/50)
Risk factors (slb60/43)
Road junction (s2a29/120)
Romford County Court (s2a69/1)
Roof load (slb69/113)
Roof loading (slb69/110)
Roof panel (slb68/28)
Roof structure (slb69/108)
Safety measures (slb67/31)
San Andreas fault (s2a25/61)
San Francisco bay area (s2a25/68)
San Francisco earthquake (s2a25/47)
San Francisco peninsula (s2a25/85)
Santa Cruz earthquake (s2a25/9)
Satellite (remote sensed) image (s2a29/87)
Satellite (viewing) positions (s2a29/118)
Scale costs (s2a69/24)
Scatter angle (s2a28/44)
Scheme work permits (slb59/38)
School teacher (slb62/28)
Science Museum (s1b7/45)
Scilly Isles (slb63/217)
Scrutiny aspect (slb54/32)
Scrutiny Committee (slb54/85)
Sea level (s1b6/35)
Sea level rise (s1b7/153)
Sector schemes (slb58/77)
Security (uprating) statement (slb58/26)
Security and Housing Benefit Bill (slb58/42)
Security benefits (slb58/17)
Security people (s2a63/71)
Security Secretary (slb56/46)
Seed money (slb54/59)
Select Committee (slb54/10)
Sex life (s2a62/122)
Shale fauna (s1b6/261)
Shale sequence (s1b6/120)
Shallow water local (s1b6/123)
Shallow water situation (s1b6/34)
Share acquisition (s2a70/79)
Share agreement (s2a70/77)
Share capital (s2a70/4)
Share interests (s2a70/4)
Share price (s2a23/24)
Sheep (annual) premium (slb56/58)
Shell Oil Company (slb52/75)
Shields Road (slb66/124)
Shorthand addresses (s2a28/111)
Side effects (s1b4/276)
Side issue (s2a22/18)
Sign language (s1b3/148)
Skid marks (slb68/41)
Skill shortages (slb59/2)
Skill technology (s2a22/36)
Slide feed problem (s2a29/97)
(Social) Security (uprating) statement (slb58/26)
(Social) Security and Housing Benefit Bill (slb58/42)
(Social) Security benefits (slb58/17)
(Social) Security Secretary (slb56/46)
Software packages (slb58/34)
Soil amplification effects (s2a25/88)
Soil moisture (s1b7/225)
South Wales Silurian (s1b6/104)
Specialist inspectors (slb55/6)
Speech synthesis (s2a30/8)
Speech-therapists (s1b3/104)
Spindle lengths (s1b9/71)
Spot construction report (slb55/11)
SSP proposals (slb58/27)
Staff employees (slb62/112)
Standard Oil Company (s1b5/11)
Steam roller (s1b8/48)
Steel bars (s2a25/95)
Steel closures (slb52/107)
Steel frames (s2a25/27)
Steel industry (slb55/83)
Step pyramid enclosure (s2a26/45)
Stobo Castle (s2a61/109)
Stoke Mandeville Hospital (slb68/45)
Stone base (s2a24/79)
Stone object or monument (s2a26/65)
Stonyhurst College (s2a26/11)
Strasbourg Council (slb54/28)
Stream courses (s2a24/14)
Student textbook (slb70/46)
Subject variations (s1b4/139)
Substance painting (s1b8/64)

Success rates (slb60/45)
Suckler cow premium (slb56/58)
Sulphur hexafluoride (s2a28/43)
Summary page (s1b7/49)
Sun block (slb66/97)
Sunday school class (s1b5/176)
Sunday Times Magazine (s2a27/75)
Surface feature (s2a25/69)
Surface rupture (s2a25/70)
Surface structure (s2a29/109)
Survival response rates (s2a29/23)
Suspension rear axle doors (slb68/19)
Sutton Coldfield (slb58/42)
Swimming pool steps (slb67/108)
Syllable exponents (s2a30/107)
Syllable graph (s2a30/98)
Syllable structures (s2a30/77)
Symptom relief (s2a29/15)
Tab settings (s1b7/233)
Tarbull view (s1b5/7)
Target tissues (s1b9/169)
Taste buds (s1b9/164)
Tattler magazine (s2a61/74)
Tax cuts (s2a23/25)
Tax rebate (s1b5/57)
Teacher education (s2a21/1)
Telephone calls (s2a70/41)
Telephone contact (slb61/192)
Telephone conversation (slb64/94)
Telephone exchange building (s2a25/92)
Television film (s2a64/7)
Temperature rise (s1b7/166)
Temple sites (s2a26/42)
Temple walls (s2a26/43)
Tenure basis (slb62/57)
Terracotta tiles (s2a24/87)
Test procedure (s2a29/51)
Test tube (slb60/20)
Text messages (s2a28/56)
The Times Atlas (s1b7/48)
Third world countries (slb53/61)
Thumbnail sketches (s2a26/21)
Time charter (s2a66/75)
Time charter hire (s2a65/1)
Time charterparty (s2a65/4)
Time directives (slb57/34)
Torsion motion (s2a25/24)
Tourism projects (slb57/98)
Tower structures (s2a25/14)
Town and Country (Planning) Act (s2a27/123)
Toxicity data (s2a29/23)
Track record (slb59/81)
Trade press (s2a70/6)
Trade Routes (s2a23/66)
Trade union bosses (slb55/54)
Trade war (slb56/64)
Trades union power (slb55/52)
Trades union reforms (slb55/66)
Trades unionism (slb55/57)
Traffic control officer (slb68/3)
Traffic noise (s1b4/344)
Trampoline dancing (s2a27/89)
Transition mechanism (slb53/20)
Transport budget (s2a23/86)
Transport expenditure (slb52/33)
Transport increases (slb52/28)
Transport infrastructure (s2a23/28)
Transport judgements (s2a66/39)
Transport service (slb52/29)
Transport system (s2a23/26)
Transport training (slb52/20)
Treasury mandarin (s2a23/45)
Treasury Minister (slb52/40)
Treatment centre (slb56/25)
Trend rate (slb52/35)
Trident (nuclear) weapons (slb54/59)
Trunk road construction programme (s2a23/91)
Trunk roads (s2a23/91)
Tunbridge company (s2a70/6)
Turnbridge Wells (s2a62/1)
Twin and adoption studies (s1b3/174)
Twin studies (s1b3/164)
UK continent (s2a65/11)
UK shores (slb63/233)
Undergraduate lectures (s2a29/34)
Unemployment figures (slb55/83)
Unemployment level (slb55/76)
Unemployment problem (slb57/25)
Unemployment sickness (slb59/85)
Union Jack (slb53/48)

United Kingdom government (slb59/51)
United States government (slb59/104)
University College London (s2a26/34)
University side (s2a25/6)
Uruguay round (slb53/18)
US history (s2a25/82)
Vagus nerve (s1b9/46)
Vauxhall Bridge (slb68/7)
Victory monument (s2a22/62)
View point (s2a21/41)
Villa estate (s2a26/70)
Voice nasalization and aspiration (s2a30/111)
Vowel quality (s2a30/92)
Wage increases (slb57/43)
Wage negotiations (slb57/46)
Wages councils (slb55/62)
Wall constraints (s2a25/15)
War time (slb70/69)
Warsaw Pact (s2a23/71)
Water data (s2a28/50)
Wealth creation (slb59/79)
Weather conditions (s2a62/93)
Weight loss (s2a62/113)
Welcome meeting (slb66/155)
Welcome party (slb66/74)
Wellhausen hypothesis (s1b1/9)
Wenlock limestone (s1b6/123)
West coast ports (s2a23/31)
Westminster Bank (s2a66/36)
Westminster case (s2a65/76)
Westminster Chemicals (s2a65/76)
Whitney Bay (slb66/124)
Window openings (s2a25/90)
Winter cold (s2a64/12)
Withdrawal signs (s2a27/96)
Withdrawal symptoms (s2a27/78)
Witness box (s2a61/15)
Word processor (slb64/26)
Word structure (s2a30/73)
Work force (s2a67/124)
Work pattern (slb62/162)
Work permit (slb59/40)
Work permit scheme (slb59/37)
Work place (slb55/14)
Work record (slb62/152)
Workforce work (slb58/51)
World authority (s2a62/73)
World Class (footballing) skills (slb59/15)
World countries (slb53/61)
World Cup (slb59/17)
World Health Organisation (slb60/44)
World trade (slb53/117)
World War (slb70/90)
Youth (training) budget (slb59/21)
Youth training (slb59/15)
YTS scheme (slb59/14)
YTS trainees (slb59/17)
Zero level (s1b4/252)
Zero rating (s2a69/20)

6.3 APPENDIX III LEXICALISED N+N STRUCTURES

LEXICALISED N+N STRUCTURES IN WRITTEN AMERICAN ENGLISH I

N+N	MODIFICATION	COORDINATION	SEMANTIC OPACITY	ORTHOGRAPHIC REPRESENTATION
Air Force (BG3/119)	+	+	+	-
Alpha-beta-gammas (BK27/27)	+	+	-	+
Baby boy (BK26/81)	+	+	-	-
Bank accounts (BA2/15)	+	+	-	-
Battle ground (BG2/21)	+	+	-	-
Beach-head (BK29/141)	+	+	+	+
Bermuda shorts (BB16/31)	+	+	+	-
Bond issue (BA1/125)	+	+	+	-
Bone marrow (BJ15/31)	+	+	+	-
Box turtle (BB9/34)	+	+	-	-
Brush clump (BK2/102)	+	+	-	-
Button pushers (BG3/32)	+	+	+	-
Camera film (BA20/19)	+	+	-	-
Career girl (BA16/91)	+	+	-	-
Cash register (BA19/32-33)	+	+	+	-
Chain stores (BB16/74-75)	+	+	+	-
Christmas bow (BK28/160)	+	+	+	-
Church fathers (BB12/171)	+	+	+	-
Cigarette lighters (BA20/108)	+	-	+	-
City council (BA1/82)	+	-	-	-
City hat (BK28/61)	+	-	-	-
City-dweller (BG8/51)	+	+	-	+
Clover plants (BJ16/25)	+	-	-	-
Cocktail party (BA17/27)	+	+	-	-
Conference	+	+	-	-

house (BK27/158-159)				
Convenience foods (BA26/59)	+	+	+	-
Copy writer (BA16/111)	+	+	+	-
Corn flakes (BK25/19)	+	+	-	-
Corner group (BK4/38)	+	+	+	-
Corner markets (BB16/77)	+	+	+	-
Cotillion gown (BA16/75)	+	-	+	-
Death penalty (BB26/145)	+	+	-	-
Death sentence (BB26/154)	+	+	-	-
Decision making (BG3/144-145)	+	+	-	-
Desert island (BB8/115)	+	+	-	-
Dust blanket (BJ7/127-128)	+	-	-	-
Egg case (BK27/155)	+	-	-	-
Election ballot (BA1/104)	+	+	-	-
Election campaign (BA1/184)	+	+	-	-
Election commissioners (BB16/90)	+	+	-	-
Emergency room (BB8/167-168)	+	+	+	-
Enemy land (BK2/21-22)	+	+	+	-
Entrance hall (BK27/66-67)	+	+	-	-
Entrance tickets (BG5/55)	+	+	+	-
Error angle (BJ80/149)	+	+	-	-
Eye range (BK2/11-12)	+	+	+	-
Eye sockets (BG4/122)	+	+	+	-
Fair grounds (BA26/83)	+	+	+	-
Fallout shelters (BA16/112)	+	+	+	-
Family physician (BB15/164)	+	+	+	-
Farm houses	+	+	-	-

(BA17/123)				
Fire storm (BB16/18)	+	-	-	-
Flower gardens (BK4/96)	+	-	-	-
Fringe benefits (BB12/4)	+	+	+	-
Funeral parlor (BK3/2)	+	+	-	-
Gas pedal (BB9/167)	+	+	+	-
Grab bag (BG9/157-158)	+	+	+	-
Growth stocks (BA26/56)	+	+	-	-
Home offices (BA26/126)	+	+	+	-
Home town (BG1/184)	+	+	+	-
Ice box (BK26/50)	+	+	+	-
Ice water (BK26/49)	+	+	-	-
Index finger (BK25/116)	+	-	-	-
Iron Curtain (BB11/87)	+	+	+	-
Jet tankers (BG3/82)	+	-	+	-
Labor unions (BG11/32)	+	+	+	-
Land Rover (BG4/81)	+	+	+	-
Law practice (BG7/124)	+	+	-	-
Law suits (BA19/70-71)	+	+	+	-
Life boat (BB17/130)	+	+	+	-
Light beam (BJ16/55)	+	+	-	-
Lymph nodes (BJ12/10-11)	+	-	-	-
Machine gun (BK2/39)	+	+	+	-
Market crash (BB12/40)	+	+	+	-
Motel-keepers (BA17/94)	-	+	-	+
Mother country (BG1/116)	+	+	+	-
Nation-state (BG2/4)	+	+	-	+
New York Mets (BA16/164)	+	+	-	-
New York	+	+	-	-

Yankees (BA11/100-101)				
Night club (BA16/118)	+	+	+	-
Night dress (BK5/60)	+	+	+	-
Opera House (BA17/41)	+	+	-	-
Paper work (BA27/125)	+	+	+	-
Patron saints (BG1/25)	+	+	+	-
Peace corps (BB16/22)	+	+	+	-
Peace treaty (BB11/92)	+	+	-	-
Pension plan (BA1/63)	+	-	-	-
Picket lines (BG8/79)	+	+	-	-
Plaster casts (BK29/2)	+	-	-	-
Post office (BK27/159)	+	+	+	-
Power plant (BA20/83-84)	+	+	+	-
Press conference (BB27/77)	+	+	+	-
Rabbit warren (BK4/91)	+	+	-	-
Rain cloud (BG4/12)	+	+	-	-
Rain dance (BG11/121)	+	+	+	-
Rain squall (BG4/6)	+	+	+	-
Rat-holes (BK4/60)	+	+	-	+
Rest home (BB8/166)	+	+	+	-
River bed (BG5/89-90)	+	+	+	-
Roller skates (BK25/39-40)	+	+	+	-
Room temperature (BJ4/161)	+	+	+	-
Salvation Army (BA17/62)	+	+	+	-
Saw-horse (BK29/161)	+	+	+	+
Scar tissue (BJ15/92)	+	+	+	-
Shower room (BK27/139)	+	-	-	-
Sports car	+	-	+	-

(BB9/39)				
Spring water (BG5/83)	+	+	+	-
Stag dinner (BA17/31)	+	+	+	-
Stock exchange (BB11/102)	+	+	+	-
Stock holdings (BB16/142)	+	+	+	-
Stock market (BA26/ 42)	+	+	+	-
Stop lights (BA20/187)	+	+	-	-
Tea party (BB27/178)	+	-	-	-
Telephone calls (BA1/185)	+	+	-	-
Tie dinner (BA17/25)	+	+	+	-
Toll booths (BB17/96)	+	-	-	-
Town council (BB15/52)	+	-	-	-
Track meet (BA11/161-162)	+	+	+	-
Traffic jam (BB9/151)	+	+	+	-
Tree-clumps (BG4/51)	+	-	-	-
Trouser cuffs (BK25/62-63)	+	-	-	-
Vine bower (BK25/22)	+	+	-	-
Water rat (BG5/75)	+	-	-	-
Wedding trip (BA16/19)	+	+	-	-
Week-end (BA20/27)	+	+	-	-
Welcome mat (BA17/73-74)	+	+	+	-

LEXICALISED N+N STRUCTURES IN WRITTEN BRITISH ENGLISH I

N+N	MODIFICATION	COORDINATION	SEMANTIC OPACITY	ORTHOGRAPHIC REPRESENTATION
Air Force (LA3/213)	+	+	+	-
Air mails (LB23/78)	+	-	+	-
Air Ministry (LA9/29)	+	-	+	-
Air terminal (LK5/18)	+	-	+	-
Air transport (LA15/54)	+	-	+	-
Air-Commodore (LB9/131)	+	-	+	+
Base line (LJ14/86)	+	+	+	-
Bird-cherry (LG51/175)	+	+	+	+
Blood cells (LJ16/182)	+	+	+	-
Blood pressure (LJ16/32)	+	+	+	-
Blood suckers (LB5/157)	+	+	+	-
Board-room (LK1/98)	+	+	-	+
Boat-train (LB5/32)	+	-	+	+
Bow tie (LA3/127)	+	+	+	-
Brain-washing (LG5536)	+	+	+	+
Bush-telegraph (LK23/154)	+	+	+	+
Cheek-bones (LK21/176)	+	-	-	+
Chit-chat (LB5/38)	+	+	+	+
Church-goers (LB16/86)	+	+	-	+
Cliff-face (LK21/114)	+	+	-	+
Coca-Cola (LK2/20)	+	+	+	+
Coffee bar (LA9/130)	+	+	+	-
Concentration camps (LA10/131)	+	+	+	-
Cook boy (LK2/16)	+	-	+	-
Crash barriers (LA4/86)	+	+	+	-

Crew-cut (LK5/175)	+	+	+	+
Deck chair (LK22/35)	+	+	+	-
Dog-days (LG54/14)	+	+	+	+
Family doctor (LB14/183)	+	+	+	-
Father figure (LA3/120)	+	-	-	-
Field work (LJ14/184)	+	-	+	-
Field-marshals (LG54/93-94)	+	+	+	+
Fighter bombers (LB6/49)	+	+	-	-
Fire brigade (LA12/51)	+	+	+	-
Football pools (LA22/37)	+	+	+	-
Gang-plank (LK22/58)	+	+	+	+
Gas chamber (LJ18/148)	-	+	+	-
Ghost story (LG77/196)	+	-	+	-
Glory-hole (LG51/167)	+	+	+	+
Hand baggage (LK26/15)	+	-	+	-
Hand basin (LK26/78)	+	+	+	-
Head-dress (LK3/108)	+	+	+	+
Health Service (LB9/170)	+	-	+	-
Health visitor (LJ14/108)	+	-	+	-
Heart beats (LJ16/33)	+	+	-	-
Hill-side (LK4/206)	+	-	-	+
Home Secretary (LB8/18-19)	+	-	+	-
Home-makers (LA16/212)	+	+	+	+
Horror story (LG77/196)	+	-	-	-
Income tax (LB7/51)	-	-	+	-
Juke box (LA9/124)	+	+	+	-
Left-winger (LB8/57)	+	-	+	+
Lobster-pot (LK21/124)	+	-	-	+

Love affair (LK23/7-8)	+	+	-	-
Love-play (LK2/142)	+	+	-	+
Money-spinners (LB8/182)	+	+	+	+
Mosquito-net (LK2/132)	+	-	-	+
Music Hall (LK24/155)	+	-	+	+
Notice-board (LK21/2)	+	+	-	+
Nut-crackers (LK3/209)	+	-	-	+
Office hours (LK1/95)	+	-	-	-
Paper work (LB10/187)	+	+	+	-
Patron saints (LB5/89)	+	+	+	-
Police officer (LA12/205)	+	-	-	-
Post Office (LA16/59)	+	+	+	-
Punishment cell (LA9/106)	+	-	+	-
Radio-therapist (LK23/106)	+	+	+	+
Salt water (LJ16/9)	+	-	-	-
School leavers (LA12/102)	+	-	+	-
Shirt cuffs (LK1/8)	+	-	-	-
Shirt-sleeves (LK3/58)	+	-	-	+
Shop stewards (LA4/174)	+	+	+	-
Sickness benefit (LB14/71)	+	+	+	-
Sight-seeing (LK22/178)	+	+	+	+
Sledge-hammers (LB5/56)	+	+	+	+
Space age (LB6/214)	+	-	+	-
Spin trap (LA22/125)	+	+	+	-
Sponge cake (LK22/170)	+	+	-	-
Stock Exchange (LA13/171)	+	+	+	-
Stock market (LA16/130)	+	+	+	-
Subject matter (LG77/81)	+	+	+	-

Swivel armchairs (LA10/188)	+	-	+	-
Table napkin (LK3/147)	+	-	-	-
Table tennis (LA9/135)	+	+	+	-
Tape recordings (LB5/65)	+	-	+	-
Tape-recorder (LA10/197)	+	-	+	-
Tax-payers (LA16/57)	+	+	-	+
Teddy-bear (LG51/15)	+	+	+	+
Telephone call (LG63/45)	+	+	-	-
Time-scale (LG58/91)	+	-	-	+
Tourist office (LK22/61)	+	-	-	-
Town Council (LB23/88)	+	-	-	-
Town Hall (LK24/135-136)	+	-	+	-
Trade unionist (LB5/57)	+	+	+	-
Trade unions (LB8/143)	+	+	+	-
Trap-door (LJ18/148)	+	+	+	+
Trouble-spot (LA13/58)	+	+	-	+
Union chief (LA12/237)	+	-	+	-
Union Fellows (LK26/99)	+	-	+	-
Village green (LB5/92)	+	+	+	-
Wage pause (LB9/51)	+	-	+	-
Waste-paper basket (LB9/97)	+	+	+	-
Wedding cake (LK26/10)	+	-	-	-
Wedding-dress (LA9/227)	+	-	+	+
Welfare State (LB14/5)	+	+	+	-
Window dressing (LB6/208)	+	+	+	-
Window-sill (LK21/67)	+	+	+	+
Yard-arm (LK2/69)	+	+	+	+

LEXICALISED N+N STRUCTURES IN WRITTEN AMERICAN ENGLISH II

N+N	MODIFICATION	COORDINATION	SEMANTIC OPACITY	ORTHOGRAPHIC REPRESENTATION
Aircraft carrier (FRA5/105)	+	-	-	-
Apartment building (FRK1/9)	+	-	-	-
Appeals court (FRG6/215-216)	+	-	-	-
Back-ache (FRG7/64)	+	-	-	+
Birth control (FRB7/207)	+	-	+	-
Blood bath (FRB25/112-113)	+	+	+	-
Blood pressure (FRB25/186)	+	+	+	-
Bone marrow (FRJ14/205)	+	+	+	-
Book-case (FRK1/128)	+	+	+	+
Chain reaction (FRJ79/124)	+	+	+	-
Circular letter (FRG13/19)	+	-	+	-
City center (FRA5/214)	+	-	-	-
City Council (FRA30/7)	+	-	-	-
City Hall (FRB5/78)	+	-	+	-
Coffee table (FRK5/134)	+	-	+	-
Concentration camps (FRG11/97)	+	+	+	-
Court-martial (FRB27/143)	+	+	+	+
Creek bed (FRA28/156)	+	+	+	-
Defense attorney (FRG6/119)	+	-	-	-
Desk jobs (FRG6/184-185)	+	-	+	-
Desk lamp (FRK4/175)	+	-	+	-
Dinner table (FRK5/95)	+	-	-	-
Dream Team (FRA19/134)	+	+	+	-
Emergency ward (FRK28/28)	+	+	-	-
Fire department (FRA28/119-120)	+	-	+	-

Fire escape (FRK25/38)	+	+	+	-
Fire-eater (FRA28/16)	+	+	+	+
Fund-raiser (FRA1/216)	+	+	-	+
Gas chamber (FRG11/175-176)	-	+	+	-
Gas stations (FRK1/6)	+	+	+	-
Girl-friends (FRG1/147)	+	-	+	+
Grass-roots (FRB24/184)	+	+	+	+
Ground state (FRJ2/70)	+	+	+	-
Gun crew (FRK4/67)	+	-	+	-
Hand-slap (FRA24/216)	+	+	-	+
Heart beat (FRA28/228)	+	+	-	-
House arrest (FRG6/190)	+	-	+	-
Ice creams (FRK25/40-41)	+	-	+	-
Index finger (FRK5/206)	+	-	+	-
June grass (FRK28/54)	+	-	+	-
Kitchen table (FRA28/215)	+	-	-	-
Knife point (FRK25/60)	+	+	+	-
Life-style (FRJ79/90)	+	-	-	+
Love-play (FRG1/158)	+	+	-	+
Man-slaughter (FRA24/89)	+	+	-	+
Match point (FRA19/195-196)	+	-	-	-
Movie star (FRA24/41)	+	-	+	-
Murder case (FRB24/83)	+	+	-	-
Nail polish (FRK25/56)	+	-	-	-
New York Times (FRA35/89)	+	-	+	-
Night clubs (FRK4/102-103)	+	+	+	-
Paint thinner (FRA28/123-124)	+	+	+	-
Park lands (FRB25/77)	+	-	+	-

Party girls (FRA24/74)	+	+	+	-
Pizza Hut (FRK1/10)	+	-	+	-
Poison ivy (FRG7/86-87)	+	-	-	-
Pony tails (FRK26/54-55)	+	+	+	-
Post office (FRG1/47)	+	+	+	-
Power plants (FRJ79/101)	+	+	+	-
Radio console (FRG1/11)	+	+	-	-
Record-holder (FRA19/27)	+	+	-	+
Room temperature (FRJ2/182)	+	+	+	-
Rubber bands (FRG4/93)	+	+	+	-
Saw mill (FRK27/156)	+	+	+	-
Scrap yard (FRA28/117)	+	+	+	-
Shoulder bag (FRK29/74)	+	-	-	-
Side effects (FRG7/68)	+	+	+	-
Sign post (FRB7/121)	+	+	-	-
Speech acts (FRG11/42-43)	+	+	-	-
Spin doctors (FRA23/112)	+	+	+	-
Stock market (FRA34/81)	+	+	+	-
Table salt (FRG7/94)	+	-	+	-
Task force (FRG6/18)	+	+	+	-
Telephone calls (FRB27/62)	+	+	-	-
Ticker tape (FRA34/76)	+	+	+	-
Trade agreement (FRA1/177-178)	+	-	-	-
Trailer park (FRK29/90)	+	+	+	-
Village green (FRK1/54)	+	+	+	-
Washington Post (FRG6/166)	+	-	+	-
WashingtonTimes (FRA1/144)	+	-	+	-
Wheel locks (FRG4/161)	+	+	+	-

Window dressing (FRA35/76)	+	+	+	-
World Bank (FRB23/25)	+	+	+	-

LEXICALISED N+N STRUCTURES IN WRITTEN BRITISH ENGLISH II

N+N	MODIFICATION	COORDINATION	SEMANTIC OPACITY	ORTHOGRAPHIC REPRESENTATION
Balance sheets (FLA16/28)	+	+	+	-
Ball valve (FLJ77/184)	+	-	+	-
Ballot papers (FLB5/10)	+	-	-	-
Band-wagon (FLB9/82)	+	-	-	+
Bar chart (FLJ77/61)	+	-	-	-
Battle-cry (FLA32/52)	+	+	+	+
Bed linen (FLG56/80)	+	+	+	-
Breast pocket (FLK24/27-28)	+	-	+	-
Chain reactions (FLJ6/21)	+	+	+	-
Class room (FLJ16/82)	+	+	-	-
Cloak room (FLK5/126-127)	+	+	+	-
Coffee table (FLK3/124)	+	-	+	-
Copy-right (FLG59/160)	+	+	+	+
Dance floor (FLK1/133)	+	+	-	-
Death toll (FLA14/10)	+	-	-	-
Death-wish (FLB7/122)	+	-	-	+
Dinner jacket (FLK1/167)	+	-	+	-
Ear-drums (FLK5/137)	+	+	+	+
Family man (FLK26/5)	+	-	+	-
Field goals (FLA33/34)	+	+	+	-
Fire fighters (FLA24/13)	+	+	+	-
Gold diggers (FLA14/49-50)	+	+	+	-
Grammar school (FLK22/125)	+	-	+	-

Guest-list (FLA10/122)	+	-	-	+
Hat-trick (FLA32/27)	+	+	+	+
Health care (FLA1/21)	+	-	-	-
Health Service (FLA1/6)	+	-	-	-
Heart attack (FLK1/64)	+	+	-	-
Hire-car (FLK2/131)	+	-	-	+
Hunger strike (FLA1/175)	+	-	-	-
Ice cream (FLK23/47)	+	-	+	-
Ice-dancing (FLK23/102)	+	-	-	+
Interest groups (FLB10/42)	+	-	+	-
Labour camp (FLB8/58)	+	-	+	-
Lady friend (FLK21/154)	+	+	+	-
Land Rover (FLK26/36)	+	+	+	-
Landslide victory (FLA1/40)	+	+	+	-
Life Insurance (FLB10/4)	+	-	+	-
Life style (FLB7/176)	+	+	-	-
Lip-service (FLG55/46)	+	+	+	+
Love stories (FLK24/136)	+	-	-	-
Nancy-boys (FLB7/116)	+	+	+	+
Nation states (FLB10/154)	+	+	-	-
Note pad (FLK23/142)	+	+	-	-
Number plates (FLB14/93)	+	+	+	-
Nut-shell (FLG54/69)	+	+	-	+
Opinion poll (FLB5/39)	+	+	-	-
Par value (FLA15/98-99)	+	+	+	-
Peat bog (FLG62/206)	+	+	-	-
Pep talk (FLK3/138)	+	+	-	-
Phone call (FLK3/1)	+	+	-	-
Poll Tax	+	+	+	-

(FLB5/139)				
Post Office (FLB14/13)	+	+	+	-
Power plants (FLA16/180-181)	+	+	+	-
Push-chairs (FLB8/216)	+	+	+	+
Reference books (FLK21/30)	+	-	-	-
Ring road (FLK3/71)	+	+	+	-
Room service (FLK23/42)	+	+	+	-
Rush hour (FLA11/198)	+	+	+	-
Salt water (FLJ77/179)	+	-	-	-
Science fiction (FLG54/50-51)	+	+	+	-
Share price (FLA16/48)	+	-	+	-
Soap opera (FLB7/30)	+	+	+	-
Source-book (FLA15/194)	+	-	+	+
Stock market (FLA16/5-6)	+	+	+	-
Subject matter (FLB11/117)	+	+	+	-
Sun-bathers (FLA14/223)	+	-	+	+
Swing doors (FLK4/237-238)	+	-	-	-
Table tennis (FLA32/75)	+	+	+	-
Tape machine (FLB6/16)	+	-	-	-
Tape recorder (FLB6/14)	+	+	+	-
Tape recordings (FLB6/32)	+	+	+	-
Tee-shirts (FLK3/161)	+	+	+	+
Tie break (FLA33/188)	+	+	+	-
Time-Warner (FLG59/179)	+	-	+	+
Track record (FLJ78/39)	+	+	+	-
Trade Unions (FLA1/121-122)	+	+	+	-
Transistor radios (FLK5/171)	+	-	-	-
Trust fund (FLK23/179)	+	+	-	-
Twin beds (FLK1/153)	+	-	-	-

Virgin Records (FLG59/110)	+	-	+	-
Wage earner (FLG56/171)	+	-	-	-
Wall Street Journal (FLJ16/83)	+	-	+	-
Wastepaper baskets (FLK24/174)	+	-	+	-
Water sprinklers (FLA24/227)	+	-	-	-
Water-wheels (FLG62/114)	+	+	+	+
Welcome mat (FLB13/206)	+	+	+	-
Wind chimes (FLK24/141)	+	-	+	-
World Bank (FLK26/191)	+	+	+	-

LEXICALISED N+N STRUCTURES IN SPOKEN AMERICAN ENGLISH

N+N	MODIFICATION	COORDINATION	SEMANTIC OPACITY	ORTHOGRAPHIC REPRESENTATION
Ballot boxes (FACMT97)	+	-	-	-
Blood bank (FACMT97)	+	+	+	-
Board rooms (FACMT97)	+	+	-	-
Bold face (COMM797)	+	-	+	-
Bond issues (FACMT97)	+	+	+	-
Calendar year (FACMT97)	+	+	+	-
City center (COMM797)	+	-	-	-
Cross walk (COMM797)	+	+	+	-
Data bases (FACMT97)	+	+	-	-
Dinner table (FACMT97)	+	-	-	-
Fax machine (COMM797)	+	-	-	-
Fund raising (FACMT97)	+	+	-	-
Health care (FACMT97)	+	-	-	-
Heart attack (FACMT97)	+	+	-	-
Home page (FACMT97)	+	+	+	-
Ice cream (COMM797)	+	-	+	-
Lunch table (FACMT97)	+	-	-	-
New York Times (FACMT97)	+	+	+	-
Pie charts (FACMT97)	+	+	+	-
Press conference (FACMT97)	+	+	+	-
Quality control (COMM797)	+	-	-	-
Residence halls (FACMT97)	+	+	+	-
Student union (FACMT97)	+	-	+	-
Summer camps (FACMT97)	+	+	+	-
Task force (FACMT97)	+	+	+	-
Telephone call (FACMT97)	+	+	-	-

Track record (FACMT97)	+	+	+	-
Voice mail (FACMT97)	+	-	+	-
Web site (COMM797)	+	+	+	-

LEXICALISED N+N STRUCTURES IN SPOKEN BRITISH ENGLISH

N+N	MODIFICATION	COORDINATION	SEMANTIC OPACITY	ORTHOGRAPHIC REPRESENTATION
Cash flow (s2a23/24)	+	+	+	-
Cheek bone (s2a62/74)	+	-	-	-
Cross examination (s2a67/94)	+	+	+	-
Dispatch box (slb53/48)	+	-	+	-
Eye socket (s2a62/47)	+	+	+	-
Face value (s1b5/16)	+	+	+	-
Field day (s2a27/129)	+	+	+	-
Fire escapes (slb67/43)	+	+	+	-
Fork lift (s2a67/104)	+	+	+	-
Forklift truck (s2a67/7)	+	+	+	-
Front bench (slb51/73)	+	+	+	-
Gas stations (S1b5/110)	+	+	+	-
Grammar schools (s2a21/76)	+	-	+	-
Heart attack (s2a62/109)	+	+	-	-
Ice packs (s2a62/16)	+	-	+	-
Junk mail (s2a28/88)	+	-	+	-
Knee cap (s2a67/81)	+	+	+	-
Motor cars (slb63/126)	+	-	+	-
Office hours (s1b7/66)	+	-	+	-
Petrol stations (s1b5/110)	+	+	+	-
Phone call (slb69/45)	+	+	-	-
Poll tax (slb52/50)	+	+	+	-
Rain forest (s1b7/239)	+	+	+	-
Richter scale (s2a25/50)	+	-	+	-
Road junction (s2a29/120)	+	-	-	-
Seed money	+	+	+	-

(slb54/59)				
Side effects (s1b4/276)	+	+	+	-
Steam roller (s1b8/48)	+	+	+	-
Sun block (slb66/97)	+	-	-	-
Taste buds (s1b9/164)	+	+	+	-
Telephone calls (s2a70/41)	+	+	-	-
Test tube (slb60/20)	+	+	+	-
Thumbnail sketches (s2a26/21)	+	+	+	-
Track record (slb59/81)	+	+	+	-
Trunk roads (s2a23/91)	+	-	+	-
Union Jack (slb53/48)	+	+	+	-
View point (s2a21/41)	+	+	+	-
Witness box (s2a61/15)	+	+	+	-
Word processor (slb64/26)	+	+	+	-
Work force (s2a67/124)	+	+	+	-

6.4 APPENDIX IV STRESS PATTERNS OF N+N STRUCTURES, BASED ON THE JUDGEMENTS OF EIGHT NATIVE SPEAKERS OF ENGLISH[33]

NOMINAL GROUPS	SPK1 (Leigh)	SPK2 (Chris)	SPK3 (Phil)	SPK4 (Paul)	SPK5 (Kathy)	SPK6 (Suzie)	SPK7 (Eileen)	SPK8 (Janice)
air crash	1	1	1	1	2	1	1	1
air raid	1	2	1	1	2	2	2	1
balance sheet	1	1	1	2	2	1	1	2
bank accounts	1	2	1	2	1	1	2	2
blood suckers	1	2	2	2	2	1	2	2
branch officers	1	2	2	2	2	2	2	2
bull frog	1	1	1	1	1	1	1	1
car crash	2	2	1	1	2	1	2	1
chain reaction	1	2	2	1	2	1	1	2
cigarette packets	1	1	2	2	2	2	2	2
coffee shop	1	1	2	1	1	2	1	2
country folk	1	1	1	1	1	1	2	2
dance floor	2	1	1	1	2	1	1	1
desk chair	2	1	1	1	2	2	1	1
drug addiction	2	1	2	1	2	2	2	2
fire stations	1	2	1	2	2	2	1	2
football field	2	1	1	2	1	2	2	2
football-team	2	2	1	2	1	1	2	2
gas cooker	1	1	1	2	2	2	1	2
gold-mines	1	1	1	1	1	1	1	1
health care	1	1	1	1	1	1	1	1
heart attack	1	2	1	2	2	1	2	2

[33] Note: 1 indicates main stress on the first constituent, whereas 2 indicates main stress on the second constituent.

heart beat	1	1	1	1	1	1	1	1
hill-side	1	1	1	1	1	1	1	1
home-town	2	2	2	2	2	2	2	2
house arrest	1	2	1	2	2	2	2	2
ice sheet	1	1	1	2	2	2	1	1
income tax	2	1	1	2	2	2	1	1
letter box	2	2	2	1	1	1	1	2
life style	1	2	1	2	1	1	2	1
light source	1	1	2	1	1	1	1	1
love affair	1	2	2	2	1	1	2	2
machine gun	1	1	1	1	2	1	1	1
mass media	2	1	2	2	2	2	2	2
mosquito-net	2	2	2	2	2	2	2	2
news agency	2	1	2	2	2	2	2	2
office hours	2	1	1	1	1	1	1	1
opinion polls	2	2	1	2	2	2	2	2
peace treaty	2	1	1	2	1	1	2	2
phone-calls	2	2	1	2	1	1	2	1
phone number	1	1	1	1	1	1	1	1
place-names	2	2	2	1	2	2	2	1
press conference	2	1	2	2	2	2	1	2
rain cloud	2	1	1	1	1	1	1	1
room temperature	2	1	1	2	2	2	1	2
rubber pad	2	1	1	1	2	2	2	2
sea level	2	1	1	1	2	2	1	1
sea waves	1	1	1	1	1	1	1	1
street lamp	1	1	1	1	1	1	1	1
trade unions	1	2	2	1	2	2	1	1

6.5 APPENDIX V COMPOUND N+N NOUNS

COMPOUND N+N NOUNS IN WRITTEN AMERICAN ENGLISH I

Aircraft (BB26/158)	Airflow (BJ12/61)	Airframe (BJ80/49)	Airport (BA1/53)	Airways (BJ12/100)
Barnyard (BK27/145)	Baseman (BA11/23)	Bathrobe (BK1/63)	Battlefield (BG10/141)	Bedrooms (BK5/20)
Bookseller (BA20/21)	Bridegroom (BA17/137)	Bridesmaids (BA17/161)	Brushwork (BG9/57)	Bunkmate (BK29/35)
Businessmen (BB9/141)	Butterflies (BB9/48)	Caretaker (BK25/48)	Chairman (BA11/131)	Chambermaid (BK27/60)
Chestnuts (BB11/136)	Classrooms (BB9/89)	Clodhoppers (BK5/33)	Clothesbrush (BK28/65)	Clotheshorse (BK28/128)
Clubhouse (BK5/9)	Committeeman (BB11/61)	Congressmen (BK3/162)	Cornbread (BG8/10)	Councilman (BA19/85)
Countryside (BG4/50)	Dogwood (BK28/102)	Doorbell (BK5/12)	Doorknob (BB12/22)	Driveway (BK25/156)
Entranceway (BK29/162)	Eyeball (BG4/124)	Eyebrow (BA20/151)	Eyelids (BG4/121)	Eyepiece (BJ16/56)
Firemen (BB16/57)	Fireplace (BK25/30)	Fireworks (BG5/101)	Football (BB12/27)	Footbridge (BK29/15)
Footnotes (BA12/48)	Footstep (BG7/17)	Foxholes (BG3/16)	Grahamstown (BA17/154)	Grassroots (BB11/7)
Groomsmen (BA17/165)	Handlebars (BK2/139)	Headline (BA16/117)	Homeland (BG8/140)	Homemakers (BK26/112)
Housewife (BA11/174)	Landlord (BG5/72)	Landmark (BK4/19)	Linebackers (BA12/146)	Lipstick (BK1/16)
Mountainside (BG5/73)	Mouthpieces (BB11/87)	Newspaper (BB11/176)	Nightfall (BA11/130)	Officeholders (BB11/9)
Parkhouse (BA2/51)	Pathways (BJ12/52)	Paycheck (BA20/153)	Paymaster (BA20/50)	Pineapple (BB10/165)
Pocketbook (BB26/42)	Policemen (BA20/153-154)	Railroad (BA19/15)	Riverbanks (BG5/140)	Rosebuds (BK3/108)
Salesmanship (BA26/161)	Scoreboard (BA11/66)	Seaports (BG4/71)	Searchlight (BK2/88)	Shareholders (BA27/136)
Shipwreck (BB17/130)	Shipyards (BK2/140)	Shoelace (BK28/73)	Shopkeepers (BK3/11)	Showerhead (BK27/150)
Showman (BA16/159)	Signpost (BK29/159)	Skyline (BB17/87)	Snowfall (BA19/94)	Snowstorm (BB15/126)
Soundproof (BK5/119)	Speedometer (BG4/94)	Sportsman (BA16/150)	Springtime (BK3/94)	Staircases (BB11/197)
Stairway (BK27/68)	Statesman (BG2/19)	Stockholder (BA27/99)	Suitcases (BA17/98)	Summerspace (BG9/8)
Summertime (BA17/102)	Sunlight (BG5/21)	Sunrise (BG5/108)	Sunset (BG5/108)	Sunshield (BB9/29)
Taxicab (BB17/83)	Taxpayer (BB8/29)	Teahouse (BG5/51)	Teammates (BA11/120)	Teardrop (BA20/83)
Tidewater (BG1/102)	Typewriter (BA16/107)	Viewpoint (BJ12/118)	Watersheds (BG2/64)	Windbag (BK26/94)

Windfall	Wintertime	Woodwork	Workshop
(BK25/35)	(BA11/116)	(BB12/47)	(BK25/22)

COMPOUND N+N NOUNS IN WRITTEN BRITISH ENGLISH I

Aircraft (LB10/126)	Airfield (LK22/112)	Airline (LA15/21)	Airliners (LG54/205)	Airmen (LG55/168)
Airport (LK22/154)	Airway (LJ16/147)	Bathrooms (LK23/86)	Batsman (LB5/93)	Bedjacket (LK3/106)
Bedroom (LK2/131)	Bedside (LK3/107)	Bedstead (LG56/4)	Bodyguard (LG54/121)	Bookbinder (LK26/54)
Bookmakers (LA23/176)	Bookseller (LG53/14)	Bookshops (LK26/25)	Brainwashing (LG55/28)	Businessman (LK5/161)
Chairman (LB8/202)	Charterhouse (LA10/119)	Cheekbones (LK3/144)	Classmates (LG55/9)	Clergyman (LK23/41)
Coalfields (LA13/106)	Collarbone (LA23/5)	Cornflowers (LA10/52)	Countrymen (LG56/169)	Countryside (LG54/91)
Craftsman (LB5/70)	Crossman (LB9/123)	Daytime (LK26/44)	Doorstep (LB16/42)	Doorway (LK4/124)
Earthquake (LG56/60)	Eyebrow (LK2/96)	Fireplace (LK3/138)	Fishermen (LK21/168)	Floodtide (LG51/97)
Football (LA22/80)	Framework (LG51/124)	Gangway (LK22/67)	Goalkeeper (LA22/135)	Goalmouth (LA22/90)
Grapeshot (LB16/15)	Guardsman (LB8/203)	Hairdresser (LG56/21)	Handkerchief (LB23/200)	Handshakes (LG5547)
Haymarket (LG56/119)	Hillside (LG54/67)	Honeymoon (LA10/19)	Husbandmen (LG51/196)	Irishman (LA9/224)
Landlady (LK22/146)	Landlord (LA9/123)	Landmarks (LK24/139)	Lawmaking (LG53/181)	Lawsuits (LG54/203)
Limelight (LB8/42)	Linesmen (LG54/63)	Loanwords (LG51/72)	Loggerheads (LA10/85)	Logwood (LG56/51)
Mineworkers (LA13/86)	Moonlight (LB5/176)	Newspaper (LG54/142)	Nightdress (LK3/106)	Oaktree (LG51/54)
Papermakers (LA16/163)	Patchwork (LB10/35)	Pipelines (LB11/33)	Policemen (LA13/65)	Postcard (LK24/83)
Postman (LG54/55)	Postmaster (LB8/185)	Queensland (LK22/28)	Railwaymen (LB11/55)	Railways (LB10/111)
Raincoats (LB9/84)	Rainfall (LK22/156)	Ratepayer (LB23/97)	Roommates (LK26/126)	Schoolboy (LB8/201)
Schooldays (LK23/105)	Schoolmaster (LA9/91)	Schoolteachers (LB11/75)	Seagulls (LK24/194)	Seaside (LG54/200)
Shareholders (LA16/18)	Signpost (LB14/11)	Sledgehammers (LK24/111)	Snowfalls (LG54/40)	Spellbinder (LA3/116)
Stablemate (LA23/81)	Stardust (LK24/164)	Starfighter (LA3/213)	Steeplechasers (LA23/148)	Suitcase (LK5/53)
Sunbeam (LA10/221)	Swimsuit (LK26/182)	Taxpayer (LB7/15)	Teashop (LK26/48)	Textbook (LJ13/108)
Thunderclap (LK3/64)	Toothache ((LK24/2)	Typewriter (LK26/15)	Viewpoint (LG55/68)	Wallpaper (LA12/68)
Warehouse (LK24/140)	Warhead (LA3/188)	Weekend (LB8/41)	Woodcuts (LG77/139)	Wormwood (LG51/35)

Yorkshireman
(LK5/181)

COMPOUND N+N NOUNS IN WRITTEN AMERICAN ENGLISH II

Airplane (FRK29/6)	Airport (FRA5/182)	Airshaft (FRB27/12)	Airwaves (FRA1/91)	Baseball (FRG4/22)
Bathrobe (FRK25/17)	Bedroom (FRA24/81)	Bloodhound (FRK27/162)	Boardrooms (FRA35/19)	Bodywork (FRG7/125)
Boyfriend (FRK26/8)	Brainchild (FRA23/108)	Businessman (FRG8/40)	Butterfly (FRA19/24)	Cabinetmaking (FRK28/111)
Cardboard (FRG4/94)	Centerpiece (FRA5/12)	Chairman (FRB5/48)	Chairperson (FRK1/102)	Cheerleader (FRB7/61)
Chickenland (FRK25/62)	Chinatown (FRA1/201)	Cocksucker (FRK2/215)	Computermaker (FRB9/136)	Congressman (FRB5/209)
Copperheads (FRK27/77)	Cornerstone (FRJ14/35)	Cornfields (FRK1/3)	Cottonmouth (FRK27/36)	Councilman (FRB24/199)
Countrymen (FRG13/21)	Courtroom (FRA30/178)	Cowboys (FRA16/48)	Craftsmanship (FRG4/159)	Daylight (FRK5/138)
Daytime (FRB24/200)	Doorman (FRK29/86)	Doorway (FRK3/77)	Drugstores (FRG7/24)	Eyebrows (FRK3/91)
Eyelids (FRK5/202)	Farmhouse (FRK1/12)	Filmmaker (FRA24/135)	Fingertips (FRK3/27)	Firearms (FRG4/5)
Firefighters (FRA28/124)	Firemen (FRA28/225)	Fishermen (FRB25/41)	Flintlocks (FRG4/161)	Floodgates (FRK4/153)
Floorwax (FRK1/67)	Foodchain (FRJ13/235)	Foothill (FRA16/79)	Footnotes (FRJ2/59)	Footrace (FRB21/214)
Footsteps (FRB5/53)	Graveyards (FRA5/156)	Guardsman (FRK25/111)	Gunfire (FRK4/53)	Hairbreadth (FRG10/129)
Hairline (FRK29/57)	Hallway (FRK2/34)	Handbag (FRK26/98)	Handbills (FRB7/112)	Handshake (FRK2/24)
Headband (FRA23/127)	Headlands (FRG14/164)	Headlights (FRK29/39)	Headlines (FRA24/50)	Helpmate (FRG8/157)
Homelands (FRB9/13)	Homeowners (FRB6/125)	Hometown (FRK1/52)	Housecall (FRK25/21)	Housewife (FRG8/158)
Lamplight (FRG14/205)	Landowners (FRB25/18)	Lawmakers (FRB7/187)	Lawsuit (FRB27/141)	Lifeboat (FRG11/75)
Lifestyle (FRG1/164)	Lifetime (FRK4/132)	Logbooks (FRG6/100)	Lovemaking (FRK2/26)	Mailbox (FRB6/121)
Manpower (FRA19/141)	Marksman (FRG4/22)	Marksmanship (FRG4/26)	Marshlands (FRA5/146)	Mugshots (FRA30/49)
Newscaster (FRK26/17)	Newspaper (FRA5/154)	Newsreels (FRG1/16)	Newsweek (FRA1/157)	Nightshade (FRG7/1)
Officeholders (FRB24/186)	Paintbrush (FRK25/181)	Paperwork (FRG2/13)	Parkway (FRA28/118)	Paycheck (FRK27/158)
Postcard (FRB6/121)	Railroad (FRA34/100)	Roadway (FRB7/125)	Roommates (FRB24/196)	Rosemary (FRG7/165)
Salesclerk (FRK5/137)	Schoolgirl (FRA24/13)	Seaman (FRK28/200)	Seatmates (FRK2/16)	Shareholders (FRA35/7)
Shoelaces (FRK25/45)	Showerbath (FRG11/175)	Showman (FRG8/38)	Showmanship (FRG8/16)	Sidelines (FRB27/87)
Signalman (FRK4/53)	Sledgehammers (FRA35/65)	Sleepwalker (FRK5/141)	Sofabed (FRG6/146)	Spaceship (FRK28/175)

Statesmen (FRG2/49)	Steakhouse (FRK28/107)	Steamboat (FRG8/46)	Stormcoats (FRK25/49)	Streetcar (FRK3/76)
Suitcase (FRK29/73)	Sunlight (FRG14/205)	Sunstroke (FRK25/75)	Tablecloth (FRK28/118)	Taillights (FRK28/174)
Taxpayers (FRB5/88)	Teacups (FRK5/155)	Teammate (FRA19/175)	Teapot (FRK5/179)	Thumbnail (FRK3/103)
Thundercloud FRK29/5)	Thunderhead (FRK29/8)	Waistband (FRK5/201)	Wallpaper (FRK5/38)	Wardroom (FRK4/78)
Warplanes (FRA5/145)	Waterfall (FRK2/80)	Waterfront (FRK29/86)	Waterwheel (FRJ13/182)	Wavelength (FRJ7/9)
Wavenumber (FRJ2/21)	Weekend (FRA1/40)	Wheelchairs (FRG4/49)	Windshield (FRK4/16)	Woodcutter (FRK27/38)
Wristwatch (FRK29/175)				

COMPOUND N+N NOUNS IN WRITTEN BRITISH ENGLISH II

Airfield (FLG51/4)	Airplane (FLB7/99)	Airplay (FLG59/37)	Airport (FLA1/196)	Ambulancemen (FLA24/23)
Babyfoods (FLB9/200)	Bandwagon (FLB5/213)	Baseball (FLG59/56)	Bedroom (FLK26/73)	Bloodhound (FLK23/83)
Boardgames (FLK23/116)	Boardrooms (FLB10/125)	Bodyguard (FLA10/105)	Boyfriends (FLA10/41)	Brainchild (FLB14/7)
Businessman (FLB5/64)	Buttercups (FLK2/143)	Butterfingers (FLB6/164)	Butterfly (FLA1/144)	Carriageway (FLA24/189)
Chairman (FLA5/204)	Churchman (FLG54/44)	Cinemagoers (FLG59/68)	Clergymen (FLG53/102)	Coastline (FLA14/34)
Craftsmanship (FLG62/152)	Craftspeople (FLG62/48)	Crossroads (FLG62/127)	Daylight (FLK22/4)	Doorway (FLK22/187)
Earrings (FLA10/76)	Eyebrows (FLB7/62)	Eyelashes (FLK22/15)	Eyelids (FLK24/135)	Farmhouse (FLK24/41)
Fieldhouse (FLA32/135)	Fieldworker (FLB11/242)	Fingerprints (FLK5/18)	Fireball (FLK23/202)	Firebombs (FLA24/97)
Fishermen (FLA14/38)	Floodlights (FLA33/77)	Football (FLG59/55)	Foothills (FLK24/178)	Girlfriends (FLB8/214)
Graveyards (FLB7/102)	Guardsmen (FLA5/119)	Gunfire (FLK5/84)	Hairstyle (FLK22/31)	Hallmark (FLG56/20)
Handshake (FLA5/184)	Heartbeat (FLK2/183)	Homebuyers (FLB8/48)	Homelands (FLB9/24)	Honeymoon (FLA10/187)
Housemistress (FLG56/13)	Housewife (FLG56/72)	Lamplight (FLK5/106)	Lampshades (FLK1/123)	Landlord (FLB10/200)
Landmark (FLA1/94)	Landowner (FLB10/205)	Lifetime (FLB7/105)	Manpower (FLB11/185)	Marketplace (FLJ78/166)
Matchwinners (FLA32/182)	Mineworkers (FLA1/116)	Motorboat (FLK5/123)	Needlework (FLG62/156)	Notebooks (FLK22/1)
Nursemaids (FLG56/80)	Pacemakers (FLJ16/121)	Paymaster (FLB5/30)	Payphone (FLK3/14)	Pipedream (FLB12/152)
Pipeline (FLA1/14)	Playlist (FLG59/158)	Playroom (FLK22/24)	Policeman (FLA24/69)	Radiotherapy (FLJ17/163)
Railway (FLB8/117)	Rainbow (FLK23/47)	Razorwork (FLK21/106)	Ringleaders (FLA1/184)	Screensport (FLA33/96)
Seafood (FLA14/231)	Seahawks (FLA32/51)	Seaside (FLB14/76)	Shareholder (FLA15/62)	Shoplifter (FLK23/29)
Silversmiths (FLG62/138)	Sportsmen (FLA33/120)	Staircase (FLK4/247)	Statesman (FLB6/180)	Sugarman (FLA32/131)
Suitcases (FLK23/40)	Sunbeams (FLK2/142)	Sunlight (FLK2/144)	Sunshine (FLK22/194)	Swimsuit (FLK22/84)
Tablecloth (FLB7/93)	Taxpayer (FLB13/190)	Textbook (FLB10/32)	Theatregoers (FLB11/134)	Timescale (FLJ6/130)
Tradesman (FLG56/172)	Viewpoint (FLJ21/13)	Warhead (FLB6/72)	Watercolours (FLA10/156)	Waterhouse (FLB8/114)
Waterman (FLK24/2)	Waveforms (FLJ6/119)	Weekend (FLA5/132)	Welshmen (FLB6/221)	Windfarms (FLB9/83)
Windmills (FLB9/107)	Workpiece (FLA15/23)	Workplace (FLB14/72)	Workshops (FLG62/138)	Yardsticks (FLA1/40)

COMPOUND N+N NOUNS IN SPOKEN AMERICAN ENGLISH

Baseline (COMM797)	Basketball (FACMT97)	Chairman (FACMT97)	Classmen (FACMT97)	Classroom (FACMT97)
Copyrights (FACMT97)	Courtroom (FACMT97)	Fieldwork (FACMT97)	Football (FACMT97)	Footprint (FACMT97)
Framework (COMM797)	Newspapers (FACMT97)	Paperwork (FACMT97)	Pathway (FACMT97)	Piecemeal (FACMT97)
Railroad (FACMT97)	Roommates (FACMT97)	Spotlight (FACMT97)	Springboard (FACMT97)	Staircases (FACMT97)
Textbook (COMM797)	Videotape (FACMT97)	Wavelength (COMM797)	Wayside (FACMT97)	Workplace (FACMT97)

COMPOUND N+N NOUNS IN SPOKEN BRITISH ENGLISH

Benchmark (s2a28/20)	Brickwork (slb69/55)	Businessman (s2a26/34)	Businessmen (s1b5/168)	Chairman (slb54/33)
Charterparty (s2a65/8)	Cheekbone (s1b8/175)	Earthquake (s2a25/7)	Eyebrow (s1b8/185)	Fieldwork (s2a26/49)
Fingerprint (s2a68/95)	Godparent (slb60/50)	Haircut (s2a22/63)	Headlines (s2a64/64)	Heartbeat (s1b4/144)
Housewife (slb53/61)	Lunchtime (slb65/100)	Manhandling (s2a67/54)	Marketplace (s2a70/21)	Newspaper (s2a63/4)
Paintbrush (s1b8/26)	Postbag (slb60/54)	Railroads (s1b5/44)	Sandstones (s1b6/127)	Shipowners (s2a65/31)
Sunburn (slb66/96)	Taxpayer (slb54/52)	Textbook (s1b3/57)	Toothache (s2a27/63)	Typewriter (slb64/26)
Viewpoint (s1b1/42)	Warehouse (slb64/85)	Warlords (s2a22/82)	Workforce (slb58/46)	Workman (slb66/187)
Workplace (slb59/2)				

6.6 APPENDIX VI PLURAL NOUN MODIFIERS

PLURAL NOUN MODIFIERS IN WRITTEN AMERICAN ENGLISH I

Communications supplement (BB27/139)	Reactors branch (BA20/87)	Roads bonds (BA1/136)	Sports car (BB9/39)	Sweat suits drill (BA12/111)
Weapons production (BG11/104)	Works director (BA19/96)			

PLURAL NOUN MODIFIERS IN WRITTEN BRITISH ENGLISH I

Airways Corporation (LA15/17)	Arts men (LG58/163)	Brewery shares quiz (LA13/161)	Capital gains tax (LB7/96)	Clothes brush (LK1/17)
Commonwealth Immigrants Bill (LB9/4-5)	Competitions Committee (LB16/181)	Coombs Technique (LJ13/51)	Customs Duties (LA15/146)	Diabetics Diagram (LJ14/97)
Fares freeze (LA15/31)	Fares levels (LA15/22)	Feed Grains Bill (LA15/192-193)	Gas Works cylinders (LK24/198)	London mews house (LA9/94-95)
Needs test (LB23/146)	News Chronicle (LJ16/111)	Plains Development (LA16/53)	Profits jump (LA16/118)	Profits tax (LB7/142)
Public relations organisations (LB16/205-206)	Rents policy (LB23/152)	Sales consultant (LA10/50-51)	Sales girl (LA9/43)	Sales Tax (LB7/164)
Series circuit (LJ69/93)	Sewage problems egghead (LA3/123)	Societies Gazette (LA16/196)	Sports car (LB16/169)	Spurs boss (LA22/238)
Spurs equalizer (LA22/111)	Street Offences Act (LG57/8)	Tests conference (LA4/47-48)	Time-series theory (LJ18/19-20)	Trades unions (LA12/153)
University honours courses (LB11/73)				

PLURAL NOUN MODIFIERS IN WRITTEN AMERICAN ENGLISH II

AP Sports Writer (FRA19/3)	Appeals court (FRG6/215-216)	Arms embargo (FRB9/122)	Arms sales (FRB21/244)	Arts Administrator (FRA23/109)
Arts Council (FRK5/144)	Atlanta Sports Wire (FRA19/230)	Auto parts yard (FRA28/109)	California state parks system (FRB21/110)	Customs gate (FRK29/84)
Examiner news services (FRA1/98)	FDIC projects costs (FRA34/52)	Funds rate (FRA34/189-190)	Goodwill Industries building (FRB5/115)	Government affairs manager (FRA30/20)
Grass-roots organization (FRB21/190)	Headquarters positions (FRB21/107-108)	Insiders column (FRB21/142)	Investor relations director ((FRA34/25-26)	Knights linebacker (FRA16/148)
Ladies lunch (FRA23/93)	Liberties advocates (FRB27/122-123)	Morals charge (FRA24/54)	Parks resources (FRB21/88-89)	Power parts liquid (FRG7/111)
Power series expansion (FRJ20/133)	Reactors program (FRJ79/113)	Rice and beans dish (FRK1/228)	Rights Act (FRB9/221-222)	Rights crimes (FRG6/15)
Rights records (FRG6/70)	Services area (FRA30/93)	Shareholders Association (FRA35/114-115)	Shareholders list (FRA35/176-177)	Sports cars (FRB25/210-211)
Stakes fight (FRA1/83)	Standards Board (FRA35/125)	State Ethics Commission (FRB5/169)	State parks director (FRB21/85)	State parks systems (FRB21/80)
Strands approach (FRB9/71)	Studies Department (FRB9/182)	Talks process (FRB9/58-59)	Taxes pledge (FRB6/56)	Telecommunications newsletter (FRA35/200)
Unions support (FRG10/68)	Viewpoints Page article (FRB23/243)	Weapons boys (FRG4/91)	Workers rights (FRG10/118)	Works Department (FRB23/199-200)
Works director (FRA30/86-87)				

PLURAL NOUN MODIFIERS IN WRITTEN BRITISH ENGLISH II

Arts Correspondent (FLA11/4)	Clothes-stealing (FLB13/23-24)	Commons debate (FLA14/150)	Doubles success (FLA33/15)	Doubles title (FLA33/4)
Electronics company (FLA16/82)	Electronics industry (FLA16/111)	Fares structure (FLB8/173)	Hotspurs board (FLB11/12)	IEE News article (FLJ78/71)
Jobs freeze (FLA11/15)	Lands Improvement Group (FLB10/218)	Leisure services committee (FLA11/18)	News bulletin (FLA10/4)	Offences Act (FLB7/159)
Operations divisions (FLJ78/110)	Organ Transplants Act (FLJ16/49)	Orkney Islands council (FLA14/78)	Patents Department (FLJ78/116-117)	Perry Oaks Farm (FLG51/53)
Perry Oaks site	Physicians	Physics apparatus	Physics	Profits

(FLG51/197)

Redlands Road (FLB10/113)

Seahawks reporter (FLA32/34)

Sixties pop (FLK21/26)

Telecommunications company (FLA16/178)

United Nations sanctions (FLB12/134)

Western Isles council (FLB8/199)

researchers (FLJ16/170)

Results season (FLA16/3)

Seventies rock independents (FLG59/109)

Social services committee (FLG17/108)

Textiles distribution (FLA16/64)

Universities Council (FLA11/153)

Workers party (FLA1/45)

(FLJ1/8)

Rights abuses (FLA1/214)

Singles champion (FLA33/8)

Social services correspondent (FLA11/84)

Torts Act (FLJ16/182-183)

Viewers association (FLB11/101)

Youths section (FLA32/13)

experiments (FLJ1/100)

Rights issue (FLA16/27)

Singles sales (FLG59/92)

Sports Medicine (FLB11/18)

Trades Union congress (FLA1/106)

Volvo Masters titles (FLA33/156)

performance (FLA16/138)

Rovers camp (FLA32/228)

Singles semi-finals (FLA33/14)

Statistics graduate (FLA16/103)

United Nations forum (FLG53/160)

Wages bill (FLB8/140)

PLURAL NOUN MODIFIERS IN SPOKEN AMERICAN ENGLISH

Admissions Office (FACMT97)	Admissions studies (FACMT97)	Affairs Office (FACMT97)	Appeals process (FACMT97)	Associates degrees (FACMT97)
Coaches salaries (FACMT97)	College Studies curriculum (FACMT97)	Durham Scholars Program (FACMT97)	Faculty Athletics Committee (FACMT97)	Faculty Hearings Committee (FACMT97)
Faculty members time (FACMT97)	Faculty Roles and Rewards group (FACMT97)	Fellows programs (FACMT97)	Formulas list (COMM797)	Fractions item (COMM797)
Freshmen honors courses (FACMT97)	Functions problem (COMM797)	Graduate admissions tests (FACMT97)	Honors courses (FACMT97)	Honors program (FACMT97)
Human Resources Division (FACMT97)	Humanities voice mails (FACMT97)	Lecturers Committee (FACMT97)	Liberal arts education (FACMT97)	Masters degree (FACMT97)
News articles (FACMT97)	News item (FACMT97)	News magazines (FACMT97)	Pages thing (COMM797)	Specs book (COMM797)
Specs form (COMM797)	Standards (Writing) Group (COMM797)	Standards Reference Exam (COMM797)	Student affairs area (FACMT97)	Student affairs folks (FACMT97)
Trustee policies paragraph (FACMT97)	University Budget and Priorities Committee (FACMT97)	University relations staff (FACMT97)		

PLURAL NOUN MODIFIERS IN SPOKEN BRITISH ENGLISH

Accidents Prevention Unit (slb59/68)	Boot lights bumper (slb68/19)	Borders Special (s2a61/95)	Canon Films Sales (s2a63/42)	Companies House (slb51/153)
Customs matter (slb63/36)	Customs officers (s2a68/4)	Customs solicitor (slb63/258)	Damages claim (s2a64/48)	Drugs run (s2a68/106)
Law courts building (s2a24/116)	Opportunities project (slb62/128)	Overseas development and cooperation (slb54/1)	Overseas investment (slb55/52)	Patients department (s2a62/48)
Payments position (slb53/104)	Physics department (s2a28/2)	Race Relations Act (slb59/56)	Regulations circulars (s2a21/25)	Shields Road (slb66/124)
Trades union power (slb55/52)	Trades union reforms (slb55/66)	Trades unionism (slb55/57)	Wages councils (slb55/62)	

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8 RESUMEN EN ESPAÑOL

La lengua inglesa siempre ha supuesto una fuente inagotable de investigación de la que brotan nuevas incógnitas. Esto se debe fundamentalmente a que los estudios lingüísticos, como cualquier otra disciplina científica, investigan hechos de la realidad, que van evolucionando a medida que avanza el tiempo. La cuestión que trato en mi tesis es de hecho un buen reflejo de esta situación, ya que, aunque la modificación dentro de la estructura de la frase nominal por parte de otros sustantivos ya aparece plasmada en escritos de hace muchos siglos, ha sido en el siglo XX cuando se ha visto incrementado su uso, un momento en el que se ha producido una verdadera explosión en el uso de estas formaciones nominales. Como resultado de ello, han surgido algunos estudios que han tratado este tema como parte de un estudio más amplio (Jucker 1992; Biber & Clark 2002) o atendiendo a consideraciones muy concretas (Levi 1978, dentro de una teoría Generativa; Warren 1978 o Benczes 2006, desde un punto de vista semántico; Giegerich 2004, desde una perspectiva fonética; Rosenbach 2007, a través de una comparativa con las frases de genitivo), mientras que otros le han dedicado pequeños aunque esclarecedores artículos (Varantola 1993; Rosenbach 2005). Sin embargo, se aprecia una ausencia de un profundo estudio monográfico que se ocupe de estas formaciones en su conjunto, en donde se reflejen consideraciones sobre su estatus, su uso y su evolución. De ahí que esta necesidad justifique la existencia de la presente investigación.

Esta tesis pretende estudiar la evolución de los sustantivos en uso que funcionan como modificadores dentro de la estructura de la frase nominal, referidos aquí como formaciones de S+S o SUSTANTIVO + SUSTANTIVO (ej. *drug addiction*, *computer cluster*). Es esta una función que se aleja del prototipo, ya que los sustantivos suelen funcionar como núcleo de la frase nominal. Sin embargo, el estudio avala la hipótesis de su alta frecuencia como modificadores en inglés contemporáneo.

La idea fundamental en la que se basa esta tesis consiste en considerar que estas estructuras de S+S son formaciones sintácticas (cf. Huddleston & Pullum 2002), en contra de lo que otros han considerado compuestos morfológicos (cf. Levi 1978; Warren 1978; Benczes 2006). A través de un proceso de lexicalización, algunas de estas estructuras sintácticas se convierten en compuestos mediante la adquisición gradual de ciertas propiedades de índole morfológica, semántica y ortográfica.

Esta tesis se divide en varios capítulos: tras una introducción al estudio, el capítulo 2 recoge ciertas consideraciones en torno a la estructura de la frase nominal. Estas se basan en la idea de que los constituyentes de la frase nominal se construyen a partir de una secuencia de elementos que pueden ser estudiados desde el punto de vista de su forma y su función. De este modo, el capítulo se ha centrado en la definición, función y patrones estructurales de las frases nominales así como de sus modificadores, de entre los que destacan aquellos elementos que funcionan como premodificadores. De este modo, se ofrece un resumen de las diferentes propuestas que las gramáticas han formulado en cuanto a la frase nominal. Estas han servido para concluir que la frase nominal puede definirse en términos de sus partes constituyentes (núcleo y modificadores), su dependencia (ya que los modificadores dependen del núcleo) y de sus relaciones de orden (ya que los modificadores pueden preceder o suceder al núcleo). El capítulo 2 dedica también una especial atención a la premodificación, pues es esta la función que ocupan los sustantivos y que es objeto de estudio de este trabajo. De este modo, después de una revisión literaria sobre este tema, se incluye una referencia a los elementos que forman parte de la premodificación, a su orden y a las posibles combinaciones de estos elementos. Igualmente, se da cuenta del papel que juega la premodificación en comparación con la postmodificación, partiendo de la premisa de que no hay dos formas diferentes que impliquen un mismo significado. Este capítulo anuncia cuestiones que se tratarán en mayor profundidad

en los siguientes capítulos, como son la falta de contenido explícito en la premodificación, las referencias a la información contextual, así como otras funciones de orden pragmático.

El capítulo 3 se centra en el estudio de los sustantivos como modificadores y proporciona un análisis exhaustivo de sus características. En él, se proporciona una definición de estas formaciones y se discute una serie de explicaciones que justifican su uso. De este modo, la sección 3.1 define los sustantivos como modificadores tanto como complementos o adjuntos como restrictivos o no restrictivos. La sección 3.1.2 se encarga de la variabilidad de los patrones acentuales de los modificadores nominales. Este es un tema sobre el que han surgido grandes controversias. De hecho, las formaciones de S+S han servido en ocasiones para argumentar en contra (cf. Olsen 2000a) o a favor (cf. Payne & Huddleston 2002) de la distinción entre frases sintácticas y compuestos. Estas visiones contrapuestas han sido analizadas de forma pormenorizada, así como las razones alegadas por otros en cuanto a la variabilidad. En este sentido, Plag (2006) intenta explicar esta variabilidad atendiendo a una combinación de características estructurales, semánticas y analógicas.

Más adelante, se ofrece un análisis de las propiedades morfológicas de los sustantivos como modificadores, los cuales pierden su inflexión de plural. Se ofrece asimismo una serie de razones que explican esto, tales como una baja referencialidad como base para esta falta de marca de plural (cf. Koptjevskaja-Tamm & Rosenbach [2005; citada en Rosenbach 2007]) o ciertas connotaciones semánticas diferentes que adquieren estos sustantivos (cf. Taylor 2000).

La necesidad de encontrar razones que expliquen por qué se utilizan estas formaciones de S+S se debe fundamentalmente al hecho de que existen otros recursos sintácticos, como las cláusulas o las frases preposicionales, que parecen contener el mismo significado que los sustantivos como modificadores. Por ello, se aduce en este momento a motivaciones económicas (cf. Haiman 1985) y a la posibilidad de los hablantes de predecir información

contextual disponible. De este modo, factores como la distancia temporal desde la última mención, la mención reciente de otros referentes potenciales o la información semántica dentro de la cláusula afectan a la accesibilidad al concepto expresado mediante una estructura de S+S (cf. Givón 1989).

La sección 3.2 resume los análisis realizados en torno a las formaciones de S+S que se han dado a lo largo del siglo XX. Se distinguen tres estadios diferentes. La variedad de perspectivas que los autores proporcionan al estudio de estas formaciones no son más que un claro ejemplo de la heterogeneidad que caracteriza a las estructuras de S+S. En cuanto a un hipotético primer estadio, las formaciones de S+S eran consideradas eminentemente compuestos. De este modo, Li (1971) o Warren (1978) caracterizaron estas formaciones como compuestos que subcategorizan los referentes de los sustantivos. Las relaciones semánticas fueron objeto de estudio de autores como Bybee (1985). El trabajo de Levi (1978) representa una corriente generativa transformacional que defendía la consideración de las formaciones de S+S como instrumentos nominales generados a partir de oraciones subyacentes.

En cuanto al potencial segundo estadio, se caracteriza por un interés en las formaciones de S+S desde una perspectiva sociolingüística (cf. Raumolin-Brunberg 1991; Jucker 1992). En este momento se inicia también el debate en torno al origen sintáctico o morfológico de las estructuras de S+S.

Finalmente, un potencial último estadio se caracteriza por un interés en medir el uso creciente de las formaciones de S+S (cf. Biber & Clark 2002; Rosenbach 2005). Benczes (2005) aporta un estudio sobre las formaciones de S+S metonímicas y metafóricas, mientras que el debate en torno al estatus de estas formaciones se desarrolla con los trabajos de Giegerich (2004) y Plag (2006) sobre la variabilidad de los patrones acentuales.

La sección 3.3 está dedicada a analizar la ambigüedad derivada del uso de las formaciones de S+S. Esta ambigüedad se analiza desde tres perspectivas diferentes: sintáctica, semántica y categorial. Así, desde una perspectiva sintáctica, las relaciones entre los elementos internos de una secuencia de sustantivos pueden variar (ej. ¿Es un *bank insurance system* un sistema de seguros de un banco concreto o un sistema de seguros de banco en general?). Desde un punto de vista semántico, las combinaciones de sustantivos pueden dar lugar a un significado relacional ambiguo. Consecuentemente, existen formaciones de S+S cuyos significados difieren de la suma de cada uno de los significados de sus partes componenciales y que a menudo derivan en significados metafóricos (ej. *snail mail*). Finalmente, desde un punto de vista categorial, los sustantivos como modificadores pueden verse sujetos a un proceso gradual de conversión en adjetivos, ya que ocupan la función que de manera prototípica les corresponde a estos últimos (ej. *key concept*).

La sección 3.4 trata la cuestión de la lexicalización, entendida como un proceso mediante el cual determinadas formaciones de S+S se asientan en la lengua inglesa como parte de su vocabulario. Se incluye aquí una caracterización de los criterios que se pueden utilizar para definir el estatus de las estructuras de S+S y que son de orden fonológico, morfológico y semántico. En cuanto al primero de ellos, éste se caracteriza por la inconsistencia y variabilidad de los patrones acentuales. En cuanto a la morfología, la existencia de un compuesto implicaría que sus partes constituyentes actuarían como una sola unidad en la que la modificación o coordinación de cada una de sus partes individualmente no sería gramatical. Desde una perspectiva semántica, el significado de un compuesto adquiere propiedades idiosincrásicas y deja de ser igual a la suma de los significados individuales de cada una de sus partes. Estos criterios conllevan ciertos problemas, excepciones e inconsistencias de los que este capítulo también se ocupa. Como consecuencia de ello, se ha

optado por asumir que la distinción entre sintaxis y morfología en una cuestión de gradencia. Para ello, se hace una caracterización de la composición en la que se incluye una definición y una clasificación atendiendo a perspectivas semánticas (cf. Warren 1978; Carstairs-McCarthy 1992) y sintácticas (cf. Lees 1960; Levi 1978; Quirk *et al.* 1985).

La sección 3.5 realiza una comparación de los modificadores nominales con otros pre- y post-modificadores (genitivos, adjetivos, frases preposicionales y cláusulas de relativo). Esta comparación se debe a la idea de que existen varias razones que justifican el empleo de uno u otro dependiente. Así, se alude al papel que juega la animacidad, la economía lingüística, o la permanencia y especificidad de los mensajes que generan las formaciones de S+S.

El capítulo 4 supone el complemento empírico al capítulo anterior, pues se trata de un estudio basado en un corpus de textos en inglés sobre la evolución y el uso de estas formaciones de S+S. En primer lugar, se ofrece una explicación de la hipótesis principal desde la perspectiva de cuatro variables: categoría textual, comunidad de hablantes, diacronía y modo. A continuación, se hace referencia a los córpora de inglés hablando y escrito que han sido seleccionados para elaborar este estudio empírico así como a la metodología empleada con este material. Una vez analizados los datos, se ofrece una explicación de los resultados desde el punto de vista de las variables mencionadas anteriormente así como los resultados derivados de la aplicación de los criterios de lexicalización a los datos.

Los resultados derivados de este estudio de corpus demuestran, en primer lugar, que las razones por las que se emplean las formaciones de S+S en inglés contemporáneo varían dependiendo de la categoría textual: Prensa y Ciencia utilizan un mayor número de formaciones de S+S que géneros narrativos como Ficción. Sin embargo, las razones por las que cada una de estas categorías emplea los sustantivos modificadores son bien distintas;

mientras que la prensa opta por estas formaciones por razones de concisión (las formaciones de S+S contribuyen a ganar espacio en prensa), el lenguaje científico utiliza estas estructuras debido a que el uso de sustantivos proporciona una mayor universalidad y permanencia a los conceptos que representan, de ahí que, en líneas generales, el lenguaje científico sea más nominal que verbal. Por otro lado, el lenguaje narrativo prefiere hacer un mayor uso de las formaciones lexicalizadas que los demás, lo cual demuestra un carácter más conservador, reticente a innovar creando nuevas construcciones. Esto es lo mismo que le ocurre al inglés británico, la comunidad de hablantes más conservadora frente al inglés americano, la comunidad más innovadora que utiliza un mayor número de formaciones no lexicalizadas. El análisis de datos también revela que es en la lengua escrita donde se da una mayor frecuencia de formaciones de S+S. Probablemente, esto se deba a que los textos escritos son menos densos desde un punto de vista léxico y consecuentemente tienen, proporcionalmente, más palabras gramaticales que léxicas. A esto debe añadirse que el lenguaje oral muestra una preferencia por las oraciones basadas en verbos que en sustantivos. En cuanto al paso del tiempo, el incremento en el número de estructuras de S+S no ha sido demasiado marcado durante los treinta años que separan los dos espacios temporales analizados (1960 y 1990). Parece que la gran explosión en el uso de estas formaciones tuvo lugar en los años 50 (cf. Biber & Clark 2002) y que a partir de entonces hubo un aumento progresivo en su uso pero discreto. Las razones a las que se alude en el trabajo se basan en que existe un fenómeno social que tiene un efecto lingüístico en este momento. Se produce en la década de los 60 una especie de transición de una sociedad caracterizada por poseer unas convenciones jerárquicas muy fuertes hacia una sociedad en la que estas convenciones se ven de algún modo relajadas, convirtiéndola en una sociedad más abierta y tolerante. Este cambio social tiene su reflejo lingüístico en lo que Mair (1997) denominó como una corriente de *informalización* que afectó

a ciertas convenciones estilísticas en el lenguaje a través de una *coloquialización* del discurso, en la que las formaciones de S+S pudieron jugar un importante papel. Estas razones ayudan a expresar el doble papel de las formaciones de S+S en el lenguaje formal (como aporte de cierto carácter universal a los conceptos científicos) y en el lenguaje menos formal (como forma rápida y directa de distribuir la información).

En el capítulo 5 se ofrece un resumen de todo lo que en este estudio se ha tratado así como las conclusiones finales a las que se han llegado. Así, podemos afirmar que, en cuanto a su **estatus**, en este estudio se ha probando de forma teórica y empírica que las formaciones de S+S pertenecen a la esfera sintáctica pero que, evidentemente, y en cuanto a su **evolución**, algunas de ellas se incorporan a un proceso gradual de lexicalización por el que contribuyen a ampliar el léxico de la lengua inglesa. Hay que enfatizar el carácter gradual de este proceso, lo cual explicaría por qué las fronteras entre la sintaxis y la morfología en el caso de las formaciones de S+S son en ocasiones tan difusas. En cuanto a su **uso**, se ha probado que éste varía según la categoría textual, la comunidad de hablantes que lo emplea y el modo. Además, la fuerte explosión en el empleo de estas formaciones de la primera mitad del siglo XX ha sido sucedida por un incremento más discreto pero continuado como respuesta lingüística a un efecto de corte social.

Este estudio se complementa con un completo apéndice en el que se recogen los ejemplos de los que habla y en los que se basa la investigación:

En el Apéndice I se recoge una lista de los extractos tomados de los córpora de inglés escrito británico y americano. En el Apéndice II se presentan todas las formaciones de S+S que han sido encontradas y analizadas en todos los córpora de lenguaje hablado y escrito. Cada uno de los ejemplos encontrados lleva adherida una referencia sobre su procedencia (corpus [comunidad de hablantes y período], categoría textual, texto y línea). El Apéndice III

recoge el conjunto de estructuras lexicalizadas encontradas como resultado del análisis realizado a las estructuras del apéndice anterior, en el que se especifican los resultados obtenidos según cada criterio de lexicalización (modificación, coordinación, opacidad semántica y representación ortográfica). El Apéndice IV recoge los patrones de acentuación basados en las opiniones de varios hablantes nativos de inglés con los resultados de cada uno de ellos y que han servido para justificar el rechazo del criterio de acentuación como criterio de lexicalización por su alto margen de variabilidad. El Apéndice V ofrece una lista de compuestos encontrados en el análisis de cada uno de los córpora en los que todavía se distinguen sus componentes. El Apéndice VI recoge una serie de sustantivos modificadores en plural, un fenómeno que en principio no es nada prototípico en el caso de las formaciones de S+S pero que sí empieza a ser característico del inglés británico y que parece extenderse a la comunidad americana.